

GenCore version 4.5  
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OM nucleic - nucleic search, using sw model

Run on: June 30, 2002, 14:19:10 ; Search time 2325.7 seconds

(without alignments)  
1233.592 Million cell updates/sec

Title: US-09-303-518d-465

Perfect score: 1671  
Sequence: 1 ttggcattccgcgcaaat.....gaaagattacacacaatga 1671

Scoring table: IDENTITY NUC  
Gapop 10.0 , Gapext 1.0

Searched: 1736436 seqs, 858457221 residues

Total number of hits satisfying chosen parameters: 3472872

Minimum DB seq length: 0  
Maximum DB seq length: 200000000

Post-processing: Minimum Match 0%  
Maximum Match 100%

Listing first 100 summaries

Database :

N.Geneseq\_032802:\*

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7: /SIDSI/gcgdata/geneseq/geneseqn-emb1/NA1986.DAT:\*  
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22: /SIDSI/gcgdata/geneseq/geneseqn-emb1/NA2001A.DAT:\*  
23: /SIDSI/gcgdata/geneseq/geneseqn-emb1/NA2001B.DAT:\*  
24: /SIDSI/gcgdata/geneseq/geneseqn-emb1/NA2002.DAT:\*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

# SUMMARIES

Result No.	Score	Query Match	Length	DB ID	Description
1	1671	100.0	1671	AA12174	Neisseria meningit
2	1248.2	74.7	1827	AA21588	N. meningitidis pa
3	1248.2	74.7	1827	AA181303	N. meningitidis pa
4	1248.2	74.7	349980	AA21608	Neisseria meningit
5	1231.2	73.7	1887	AA12173	Neisseria gonorrhoe
6	1176.2	70.4	2028	AA543881	Neisseria meningit
7	1176.2	70.4	2028	AA17046	N. meningitidis st
8	1176.2	70.4	4425	AA543874	Neisseria meningit
9	1176.2	70.4	4425	AA17039	N. meningitidis st

10	1175.6	70.4	2019	AA543894	Neisseria meningit
11	1175.6	70.4	2019	AA17047	N. meningitidis st
12	1175.6	70.4	2256	AA543896	Neisseria meningit
13	1175.6	70.4	2256	AA17049	N. meningitidis st
14	1175.6	70.4	2421	AA543895	Neisseria meningit
15	1175.6	70.4	2421	AA17048	N. meningitidis st
16	1174.4	70.3	2304	AA543903	Neisseria meningit
17	1174.4	70.3	2304	AA17056	N. meningitidis st
18	1174.2	70.3	2256	AA543900	Neisseria meningit
19	1174.2	70.3	2256	AA17053	N. meningitidis st
20	1174.2	70.3	2421	AA543897	Neisseria meningit
21	1174.2	70.3	2421	AA17050	N. meningitidis st
22	653.4	39.1	684	AA181504	N. meningitidis pa
23	653.4	39.1	683	AA12172	Neisseria meningit
24	563.8	33.7	837096	AA181489	N. meningitidis pa
25	396	23.7	396	AA254164	Neisseria meningit
26	387	23.2	492	AA254163	Neisseria meningit
27	384.8	23.0	396	AA254162	Neisseria gonorrhoe
28	302	18.1	1731	AA254260	Neisseria meningit
29	294.4	17.6	1404	AA254261	Neisseria meningit
30	294.4	17.6	25509	AA181467	N. meningitidis pa
31	294.4	17.6	349980	AA181467	Neisseria meningit
32	286	17.1	1497	AA254262	Neisseria meningit
33	121.8	7.3	1497	AA212045	Neisseria meningit
34	121.8	7.3	1497	AA253469	Neisseria gonorrhoe
35	121.8	7.3	3287	AA170386	Neisseria adhesion
36	110.2	6.6	1155	AA253477	Neisseria meningit
37	107.2	6.4	1449	AA212045	Neisseria meningit
38	107	6.4	1452	AA212044	Neisseria meningit
39	107	6.4	1452	AA253470	Neisseria meningit
40	107	6.4	92934	AA181473	N. meningitidis pa
41	107	6.4	173235	AA181473	N. meningitidis pa
42	98	5.9	375	AA212043	Neisseria meningit
43	98	5.9	375	AA181340	N. meningitidis Me
44	45.4	2.7	349980	AA181340	Neisseria meningit
45	39.8	2.4	390	AA212833	Randomising oligon
46	39.8	2.4	390	AA181340	PCR primer for 5'
47	39.8	2.4	390	AA181340	Sequence containin
48	39.8	2.4	390	AA181340	Human immune syste
49	39.8	2.4	390	AA181340	Gene encoding a su
50	38.6	2.3	882	AA181340	M. tuberculosis im
51	38.6	2.3	882	AA181340	Mycobacterium tube
52	38.6	2.3	882	AA181340	M. tuberculosis an
53	38.6	2.3	882	AA181340	M. tuberculosis re
54	38.6	2.3	16127	AA181340	Human immune syste
55	37.6	2.3	114955	AA181340	Human adenosine A1
56	37.6	2.2	2762	AA181340	Corynebacterium gl
57	37.4	2.2	8879	AA181340	C. glutamicum codin
58	37.4	2.2	349980	AA181340	C. glutamicum codin
59	37.2	2.2	15768	AA181340	Human immune syste
60	37.2	2.2	810	AA181340	N-acetyl mannosam
61	37.2	2.2	1264	AA181340	Nucleotide sequenc
62	37.2	2.2	5042	AA181340	Human megakaryocyt
63	37.2	2.2	4403765	AA181340	Mycobacterium tube
64	36.8	2.2	5378	AA181340	Human immune syste
65	36.8	2.2	5378	AA181340	Human immune syste
66	36.8	2.2	5378	AA181340	Human immune syste
67	36.6	2.2	11014	AA181340	Staphylococcus aur
68	36.6	2.2	400	AA181340	M. tuberculosis im
69	36.6	2.2	400	AA181340	Mycobacterium tube
70	36.6	2.2	400	AA181340	M. tuberculosis an
71	36.6	2.2	400	AA181340	M. tuberculosis re
72	36.6	2.2	933	AA181340	Corynebacterium gl
73	36.6	2.2	933	AA181340	Pseudomonas aerugi
74	36.6	2.2	349980	AA181340	C. glutamicum codin
75	36.6	2.2	4411529	AA181340	Mycobacterium tube
76	36.4	2.2	1001	AA181340	Arachidonic acid m
77	36.4	2.2	2037	AA181340	C. glutamicum codin
78	36.4	2.2	2037	AA181340	C. glutamicum codin
79	36.2	2.2	349980	AA181340	C. glutamicum codin
80	36.2	2.2	6522	AA181340	Human immune syste
81	36.2	2.2	7829	AA181340	Human immune syste
82	36.2	2.2	16831	AA181340	Human gene regulat
				AA559607	Protonbacterium

Seq	Sequence 1671 BP; 484 A; 440 C; 402 G; 345 T; 0 Other;
Query Match	100.0%; Score 1671; DB 20; Length 1671;
Best Local Similarity	100.0%; Pred. No. 0;
Matches 1671; Conservative	0; Mismatches 0; Indels 0; Gaps 0;
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Db 1	ttggcgcattccgcgcaaaatacccttattctgcacatcgtcagtgctgcgcgcatg 60
QY 61	catggcaacagcctccgaatttggcaacagatctctttatccggcagaggtctccgcgcgtacg 120
Db 61	catggcaacagcctccgaatttggcaacagatctctttatccggcagaggtctccgcgcgtacg 120
QY 121	catctcgaacaccgcagcgggaaatatacactatcttgcgcagcagcgggggaacttgcgcgagcgc 180
Db 121	catctcgaacaccgcagcgggaaatatacactatcttgcgcagcagcgggggaacttgcgcgagcgc 180

## RESULT 1

AC AAZ12174;

DT 08-OCT-1999 (first entry)

Neisseria meningitidis strain A complete ORF46 sequence.

KW Neisseria meningitidis; Neisseria gonorrhoeae; antigen; vaccine;  
treatment; Neisseria infection

aa  
OS  
Neisseria meningitidis

PN W09924578-A2

PD 20-MAY-1999

PF 09-OCT-1998; 98WO-IB01665.

PR 01-SEP-1998; 98GB-0019016.

PR 14-NOV-1997; 97GB-0024190.

PR 27-NOV-1997; 97GB-0025158.

PR 14-JAN-1998; 98GB-0000759.

PA (CHIR-) CHIRON SPA.  
XX

El Grandi G, Maslignani V, Pizzia M, Rappuoli R, Scarlato V; XX

DR WFL 1999-321401/21  
DR P-PSDB: AAY38731

Proteins from Nei

[illegible]

XX

CC (ORFs) of *Neisseria meningitidis* and *N. gonorrhoeae* which encode

CC fragments, their nucleic acids and antibodies are used for diagnostics,

such as meningitis, septicaemia and gonorrhea. Both organisms

as hybridisation probes and antisense reagents.

yy

Seq	Sequence	1671 BP	484 A	440 C	402 G	345 T	0 other:
QY	Query Match	100.0%	Score 1671:	DB 20:	Length 1671:		
Db	Best Local Similarity	100.0%	Pred. No. 0:				
	Matches 1671:	Conservative	0:	Mismatches	0:	Indels	0:
						Gaps	0:
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Db	1	ttgggcatctccggcaaaaatcccttatcttgcgtacatctgacgtgctgcgcagatg	60				
QY	61	catgcacacgcgtccagatttggcaacagatctcttatccggcgaagttctcgaccgtcag	120				
Db	61	catgcacacgcgtccagatttggcaacagatctcttatccggcgaagttctcgaccgtcag	120				
QY	121	catttcgaaccgcgaacggaataaccactatttcgcgcagcaggggggaacttgcgcagcgc	180				
Db	121	catttcgaaccgcgaacggaataaccactatttcgcgcagcaggggggaacttgcgcagcgc	180				
QY	181	agtcgcacatcgcgatttgggaacatacaaaagccatcatttggcgaactgttcatccag	240				
Db	181	agtcgcacatcgcgatttgggaacatacaaaagccatcatttggcgaactgttcatccag	240				
QY	241	caaggcgccattaaagaataatcgcgtacatgttcgcgttttcgcgatccagggcagaa	300				
Db	241	caaggcgccattaaagaataatcgcgtacatgttcgcgttttcgcgatccagggcagaa	300				
QY	301	gtccatctcccttcgcacacatgcgtacacatccgatcttcgtatgaaacggatgtccc	360				
Db	301	gtccatctcccttcgcacacatgcgtacacatccgatcttcgtatgaaacggatgtccc	360				
QY	361	gttgacgattcaagccttaccgcatcocatgtggagaagatagacaaacacatccgcgcagc	420				
Db	361	gttgacgattcaagccttaccgcatcocatgtggagaagatagacaaacacatccgcgcagc	420				
QY	421	ggctacgaaggccacaaggcgcggtctatccgcgtcccaaaaggcgaggaatatatcac	480				
Db	421	ggctacgaaggccacaaggcgcggtctatccgcgtcccaaaaggcgaggaatatatcac	480				
QY	481	agctacgacataaaagcgcttggcccaaaatalcgcgtctcaaaccttgaccgacacacgcgcgc	540				
Db	481	agctacgacataaaagcgcttggcccaaaatalcgcgtctcaaaccttgaccgacacacgcgcgc	540				
QY	541	accggaacaaacggctgtgcgaaccggtttccaacataccggtagatgtctagacgaagagata	600				
Db	541	accggaacaaacggctgtgcgaaccggtttccaacataccggtagatgtctagacgaagagata	600				
QY	601	ggcgacgagatltcaaacgcgcgccacccgatatcaaaccccgagcttgagacagatctcggcacatgcc	660				
Db	601	ggcgacgagatltcaaacgcgcgccacccgatatcaaaccccgagcttgagacagatctcggcacatgcc	660				
QY	661	ggcggaagctttcaacgcgcactgacagatatcgtcaaaaacatcatcgcgcgcgcagagagaa	720				
Db	661	ggcggaagctttcaacgcgcactgacagatatcgtcaaaaacatcatcgcgcgcgcagagagaa	720				
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Db	721	attgttcggcgagcgagatgcgttcgcagggatataagcgaaggtccaaacatgtcgtttatg	780				
QY	781	caacggcttgggtctgctcttccacgcgaaaaaagaatgtgcgcgcacatcgaatttggcagat	840				
Db	781	caacggcttgggtctgctcttccacgcgaaaaaagaatgtgcgcgcacatcgaatttggcagat	840				
QY	841	atggcggaacactcaaaagactatgtccgcacaacgcacatccgcgatttggcgatccaaaacccc	900				
Db	841	atggcggaacactcaaaagactatgtccgcacaacgcacatccgcgatttggcgatccaaaacccc	900				
QY	901	aatgcgcgaacaagagatatagaagccgttcgcgcacatatccttaacggcagatcatcccggtcaaa	960				
Db	901	aatgcgcgaacaagagatatagaagccgttcgcgcacatatccttaacggcagatcatcccggtcaaa	960				
QY	961	gggatttgagcgttccggggaataacggcttggcggcgcatcacggcaacatcctgtccaag	1020				
Db	961	gggatttgagcgttccggggaataacggcttggcggcgcatcacggcaacatcctgtccaag	1020				

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Db 961 gggatggagcgtctcgggggaaatacgcgcttggcggaatcagcgacatccctgtcaag 1020
Qy 1021 cgtgcgagatggcgagatcgcgcatctgcccgaaggaatccgcctcagcgaatttt 1080
    |||||
Db 1021 cgtgcgagatggcgagatcgcgcatctgcccgaaggaatccgcctcagcgaatttt 1080
Qy 1081 gccggtggcgatacgcgaataaccgcgtcccttaccatcccggaatatccgttcaaac 1140
    |||||
Db 1081 gccggtggcgatacgcgaataaccgcgtcccttaccatcccggaatatccgttcaaac 1140
Qy 1141 ttggagagcgttaccggaagaataacatactctctcaacgttgcgcgttcaacgga 1200
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    |||||
Db 1261 ggggttccgaatttggaaaaagacgttaaaatacgaatacgaagaataataaccgttaca 1320
Qy 1321 caagtgaatccataagatgaacccgcttcaatccctaaaggtctgtcgtatcgctcat 1380
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Qy 1381 tcttggtctactgcgcgaatccaatcagcaaaattaccagaagcgagtagaatacaga 1440
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Db 1381 tcttggtctactgcgcgaatccaatcagcaaaattaccagaagcgagtagaatacaga 1440
Qy 1441 tataccacctaataaattctctcctcagcgcgcgttaccagaagaaggaactaataatga 1500
    |||||
Db 1441 tataccacctaataaattctctcctcagcgcgcgttaccagaagaaggaactaataatga 1500
Qy 1501 tatttgataaattgtgtaatagaatgactcaagaaggtccatcaagaactaagaagaa 1560
    |||||
Db 1501 tatttgataaattgtgtaatagaatgactcaagaaggtccatcaagaactaagaagaa 1560
Qy 1561 ttgaaatggatgtcattgtctaaacaggaagagagaacttggatggctagag 1620
    |||||
Db 1561 ttgaaatggatgtcattgtctaaacaggaagagagaacttggatggctagag 1620
Qy 1621 gatgtgaagcattaataatacatcaattgatgtaagaatlaacacaaatga 1671
    |||||
Db 1621 gatgtgaagcattaataatacatcaattgatgtaagaatlaacacaaatga 1671

```

## RESULT 2

AAAF21588 standard; DNA; 1827 BP.

```

XX ID AAF21588
XX AC AAF21588;
XX DT 13-MAR-2001 (first entry)
XX DE N. meningitidis partial DNA sequence orf46-2.seq SEQ ID NO:88.
XX KW Neisseria meningitidis; Neisseria gonorrhoeae; immunogenic; vaccine;
    diagnosis; antigen; detection; infection; gene therapy; antibacterial;
    ds.
XX OS Neisseria meningitidis.
XX PN W0200066791-A1.
XX PD 09-NOV-2000.
XX PE 08-MAR-2000; 2000WO-US05928.
XX PR 30-APR-1999; 99US-0132068.
    08-OCT-1999; 99WO-US23573.
    28-FEB-2000; 2000GB-0004695.
XX

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PA (CHIR) CHIRON CORP.
PA (GENO-) INST GENOMIC RES.
XX Pizza M, Hickey E, Peterson J, Tetelin H, Venter JC, Masignani V;
PI Galeotti C, Mora M, Ratli G, Scarselli M, Scarlato V, Rappuoli R;
PI Frazer CM, Grandi G;
XX WPI: 2000-647603/62.
XX P-PSDB: AAB58593.
XX
PT Neisseria meningitidis B full length genome sequence and open reading
frames are used to detect, treat and prevent Neisserial infections -
XX
PS Example 1; Page 114-115; 692pp; English.

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The present invention describes the full length genome of Neisseria meningitidis B (NMB). The sequences in AAF21544 and AAF21607 to AAF21613 represent fragments of the NMB genomic sequence, as the sequence was too long to go in a record on its own it was split into 8 sequences which overlap each other at the beginning and end of each sequence by 49980 bp (i.e. the last 49980 bp of AAF21544 is repeated at the beginning of AAF21607, the last 49980 bp of AAF21607 are repeated at the beginning of AAF21608, and so on). AAF21545 to AAF21588 encode the Neisseria proteins given in AAB58550 to AAB58593, and AAF21589 to AAF21606 represent PCR primers which are used in the exemplification of the present invention. The NMB genome and fragments from it have antibacterial activity, and can be used in vaccines and gene therapy. Neisseria nucleic acids, proteins and/or antibodies which binds to the proteins can be used in compositions for treating or preventing infection due to Neisserial bacteria or as a diagnostic reagent for detecting the presence of Neisserial bacteria or of antibodies raised to Neisserial bacteria. Computers, computer memory, computer storage medium or computer databases can be used in a search to identify open reading frames (ORFs) or coding sequences within the NMB genome. The DNA sequences provide further opportunities to find antigenic or immunogenic proteins which are more effective in vaccines than the outer membrane proteins currently used.

Sequence 1827 BP; 539 A; 446 C; 454 G; 387 T; 1 other;

Query Match 74.7%; Score 1248.2; DB 21; Length 1827;  
 Best Local Similarity 97.1%; Pred. No. 0;  
 Matches 1271; Conservative 0; Mismatches 38; Indels 0; Gaps 0;

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Qy 1 ttgggatttccgcaaaatcccttattctgtcatcactgagatgtgctgcgagt 60
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Db 1 ttgggatttccgcaaaatcccttattctgtcatcactgagatgtgctgcgagt 60
Qy 61 catgacacgcctcagatttgcgaacgaattcttlatccgacaggttctgcagctcag 120
    |||||
Db 61 catgacacgcctcagatttgcgaacgaattcttlatccgacaggttctgcagctcag 120
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Db 121 catttgaacccgacgggaataatacactatccgacgagggggaacttgcgacgac 180
Qy 121 catttgaacccgacgggaataatacactatccgacgagggggaacttgcgacgac 180
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Db 121 catttgaacccgacgggaataatacactatccgacgagggggaacttgcgacgac 180
Qy 181 aggggtcatatcgatttgggaataacatacaagcactcaatgtgggaacctgtctcag 240
    |||||
Db 181 aggggtcatatcgatttgggaataacatacaagcactcaatgtgggaacctgtctcag 240
Qy 181 aggggtcatatcgatttgggaataacatacaagcactcaatgtgggaacctgtctcag 240
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Db 181 aggggtcatatcgatttgggaataacatacaagcactcaatgtgggaacctgtctcag 240
Qy 241 caggcgccatataaaggaataatcggctacatgttcggttttccgatacgggacgaa 300
    |||||
Db 241 caggcgccatataaaggaataatcggctacatgttcggttttccgatacgggacgaa 300
Qy 301 gtccattcccttcgacaacaacatgctcaatccgattcgtatgtagagcgtgtccc 360
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Db 301 gtccattcccttcgacaacaacatgctcaatccgattcgtatgtagagcgtgtccc 360
Qy 361 gttagcagatgaagccttaccgcatcatttgggaaggaatacgaacacatccgcgac 420
    |||||
Db 361 gttagcagatgaagccttaccgcatcatttgggaaggaatacgaacacatccgcgac 420

```

```

OY 421 ggcctgacggcgccacgagggcgcggtatcccgctcccaaggcgcgagatataac 480
    |||||||
DB 421 ggcctatgacggcgccacgagggcgcggtatcccgctcccaaggcgcgagatataac 480
OY 481 agctacgacataaaaggcggttgcacaaataatccgcctcaacccgacccgacacccgacg 540
    |||||||
DB 481 agctacgacataaaaggcggttgcacaaataatccgcctcaacccgacccgacacccgacg 540
OY 541 accggacaaaggcggttgcacacgttccacataccggtatgtatgtacgcaaggata 600
    |||||||
DB 541 accggacaaaggcggttgcacacgttccacataccggtatgtatgtacgcaaggata 600
OY 601 ggcgcgcgattcaaacgcgcacccgacacagcccgagcgctgcgcagatcgcgcaatgcc 660
    |||||||
DB 601 ggcgcgcgattcaaacgcgcacccgacacagcccgagcgcgctgcgcagatcgcgcaatgcc 660
OY 661 gccgcgagcttcaaacgcgcacgtacatactgcataaaacatcacccgcgcgagggagaa 720
    |||||||
DB 661 gccgcgagcttcaaacgcgcacgtacatactgcataaaacatcacccgcgcgagggagaa 720
OY 721 attgtcgcgcagcgatgcgtgcgtgcaagggtlaagcgagcgctcaaacatgtctgtatg 780
    |||||||
DB 721 attgtcgcgcagcgatgcgtgcgtgcaagggtlaagcgagcgctcaaacatgtctgtatg 780
OY 781 cagcgctgggttgcgttccaccgaaacagatgcgcgcatcaacgatttgcagat 840
    |||||||
DB 781 cagcgctgggttgcgttccaccgaaacagatgcgcgcatcaacgatttgcagat 840
OY 841 atgscgcacactcaaacgactatgcgcgcacacatccgcggttggcgagctcaaacacccc 900
    |||||||
DB 841 atgscgcacactcaaacgactatgcgcgcacacatccgcggttggcgagctcaaacacccc 900
OY 901 aatgcgcacacagcagatagaagccgtaagcaatacttctacgcgagctatcccgctcaaa 960
    |||||||
DB 901 aatgcgcacacagcagatagaagccgtaagcaatacttctacgcgagctatcccgctcaaa 960
OY 961 ggggttggagcttgcggggaataatagcgttggcgagcttgcgcgacatccctgtcaag 1020
    |||||||
DB 961 ggggttggagcttgcggggaataatagcgttggcgagcttgcgcgacatccctgtcaag 1020
OY 1021 cgcgtcgcagatggcgagatgcgcatlccgaaagggaatccgcgcgcacgacacatctt 1080
    |||||||
DB 1021 cgcgtcgcagatggcgagatgcgcatlccgaaagggaatccgcgcgcacgacacatctt 1080
OY 1081 ggcgcgtgcgcatgcgcacaaatccgctcccttaccatccgcgaaatctcgttcaaac 1140
    |||||||
DB 1081 ggcgcgtgcgcatgcgcacaaatccgctcccttaccatccgcgaaatctcgttcaaac 1140
OY 1141 ttggagcagcgcttgcgcgcaaaagaaacatcaactcctcaacgctgcgcgcgtcaaaagga 1200
    |||||||
DB 1141 ttggagcagcgcttgcgcgcaaaagaaacatcaactcctcaacgctgcgcgcgtcaaaagga 1200
OY 1201 aagaatgtgaactgcgcaaaacgacccgacgacacgaatgtgcggttgcggttaaa 1260
    |||||||
DB 1201 aagaatgtgaactgcgcaaaacgacccgacgacacgaatgtgcggttgcggttaaa 1260
OY 1261 ggggttccgaatttgaaaaaagacgttaaaatagatagatagagaatataa 1309
    |||||||
DB 1261 ggggttccgaatttgaagaagcagctgaatataatagatagagaatcgata 1309

```

## RESULT 3

AAA81303 standard; DNA; 1827 BP.

AAA81303;

04-DEC-2000 (first entry)

N. meningitidis partial DNA sequence orf46-2.seq SEQ ID NO:1048.

Neisseria meningitidis; Neisseria gonorrhoeae; genome; immunogenic; antigen; vaccine; diagnosis; infection; antibacterial; identification;

```

KM Meningococcus B; MenB; ds.
XX
OS Neisseria meningitidis.
XX
PN WO200022430-A2.
XX
PD 20-APR-2000.
XX
PF 08-OCT-1999; 99WO-US23573.
XX
PR 09-OCT-1998; 98US-0103794.
XX
PR 30-APR-1999; 99US-0132068.
XX
PA (CHIR ) CHIRON CORP.
PI Frazer CM, Hickey E, Peterson J, Tetelin H, Venter JC,
PI Massignani V, Galeotti C, Mora M, Ratti G, Scarselli M, Scarlato V;
PI Rapuoli R, Pizza M;
XX
DR WPI: 2000-318079/27.
XX
DR P-PSDB; AAB25663.
XX
PT Isolated nucleotide sequences of Neisseria meningitidis which can be
PT used in the diagnosis and treatment of N. meningitidis infection and
PT other Neisserial infections, for example, N.gonorrhoea .
PS
PS Example 1; Page 114; 1760pp; English.
XX
XX The present invention describes methods of obtaining immunogenic
CC proteins from Neisseria genomic sequences. AAA81453 to AAA82414
CC represent specifically claimed Neisseria meningitidis genomic DNA
CC sequences; AAA81260 to AAA81303 and AAB25620 to AAB25663 represent
CC Neisseria DNA sequences and their corresponding proteins; AAA81254 to
CC AAA81259 and AAA81304 to AAA81321 represent PCR primers used in the
CC isolation of Neisseria meningitidis DNA sequences; and AAA81322 to
CC AAA81452 represent Neisseria meningitidis MenB polynucleotide ORF
CC sequences, which are all used in the exemplification of the present
CC invention. The nucleic acid sequences, protein sequences, and antibodies
CC against them, can be used in the manufacture of a composition. The
CC composition can be used as a medicament (or in the manufacture of a
CC medicament) for treating, preventing or diagnosing infection due to
CC Neisserial bacteria. For example, some of the identified proteins could
CC be components of vaccines against Meningococcus B; against all serotypes;
CC and/or against all pathogenic Neisseriae. Identification of sequences
CC from the bacterium will also facilitate production of biological probes,
CC particularly organism-specific probes. Attempts to make efficacious
CC Meningococcus B vaccines have failed mainly due to antigen tolerance.
CC Multivalent vaccines have also been tried but none have successfully
CC overcome antigenic variability. The provision of further, complete
CC sequences may provide an opportunity to identify secreted or surface
CC exposed proteins that may be presumed targets for the immune system and
CC which are not antigenically variable or at least more conserved than
CC other more variable regions.
XX
SQ Sequence 1827 BP; 539 A; 446 C; 454 G; 387 T; 1 other;

```

## Query Match

74.7%; Score 1248.2; DB 21; Length 1827;

Best Local Similarity 97.1%; Pred. No. 0; Mismatches 38; Indels 0; Gaps 0;

Matches 1271; Conservative 0; Mismatches 38; Indels 0; Gaps 0;

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OY 1 ttgggcatlcccgcaaaatccctattctgtccatcagtcgagtgctgcgcatg 60
    |||||||
DB 1 ttgggcatlcccgcaaaatccctattctgtccatcagtcgagtgctgcgcatg 60
OY 61 catgcacgcgctcagatttgcgcaaaagatcttattcgcgcgaggttctgcagcgtcag 120
    |||||||
DB 61 catgcacgcgctcagatttgcgcaaaagatcttattcgcgcgaggttctgcagcgtcag 120
OY 121 cattcgaccgcgaggggaataccactatcgcgagcaggggggaacttgcgagcgc 180
    |||||||
DB 121 cattcgaccgcgaggggaataccactatcgcgagcaggggggaacttgcgagcgc 180

```

QY	181	agcggtcatctcgatttggggaacacataaagccatcagttggcaacctgttaccag	240
Dp	181	agcggtcatctcgatttggggaacacataaagccatcagttggcaacctgttaccag	240
QY	241	caagcgccataaaggaatatctgcgtacatctgtccgtttccgatacgggacagaa	300
Dp	241	caagcgccataaaggaatatctgcgtacatctgtccgtttccgatacgggacagaa	300
QY	301	gtccatcccccttcgaaacacccatgctacacttcgattcgtatgaagccgttgtccc	360
Dp	301	gtccatcccccttcgaaacacccatgctacacttcgattcgtatgaagccgttgtccc	360
QY	361	gttaccgattctcagcctttaccgatacctattggagcgaatacgaacacatcccgacac	420
Dp	361	gttaccgattctcagcctttaccgatacctattggagcgaatacgaacacatcccgacac	420
QY	421	ggtcattacacggccacagggcggtgcgtatccgcgtcccaaaaggcgcgaggtatatc	480
Dp	421	ggtcattacacggccacagggcggtgcgtatccgcgtcccaaaaggcgcgaggtatatc	480
QY	481	agctacgacataaaagcgctgtcccaaatatccgctcaacctacgatacgaacacggcgc	540
Dp	481	agctacgacataaaagcgctgtcccaaatatccgctcaacctacgatacgaacacggcgc	540
QY	541	accggacaacagcgcttgtcgaacgcttcacaataccggtagtatgtctgcgcaagagta	600
Dp	541	accggacaacagcgcttgtcgaacgcttcacaataccggtagtatgtctgcgcaagagta	600
QY	601	ggcgacaggtattcaaacgcgccacccgattacagcccgagcttggaaagatccgacatcc	660
Dp	601	ggcgacaggtattcaaacgcgccacccgattacagcccgagcttggaaagatccgacatcc	660
QY	661	ggcgaaagctttcaaacggcgacacttgacagatcgtccaaataacatccgctcgcgcaagagaa	720
Dp	661	ggcgaaagctttcaaacggcgacacttgacagatcgtccaaataacatccgctcgcgcaagagaa	720
QY	721	attctcgcgcgagcgagctgtccgtgcggtgacagtgataagcgaaagcttcaaacctgtcttatg	780
Dp	721	attctcgcgcgagcgagctgtccgtgcggtgacagtgataagcgaaagcttcaaacctgtcttatg	780
QY	781	caacgctcttggtctgtcgtcttccacccgaaataaagatggcgacatacgaatttggcaat	840
Dp	781	caacgctcttggtctgtcgtcttccacccgaaataaagatggcgacatacgaatttggcaat	840
QY	841	atggcgcaactcaaaagactctgcccagcgacagccatcccgagttggcgagtcccaaaacccc	900
Dp	841	atggcgcaactcaaaagactctgcccagcgacagccatcccgagttggcgagtcccaaaacccc	900
QY	901	aatgcgcacaaagcatalagaagccgttaagaatcatttttagcgcaatgcacccgttcaaa	960
Dp	901	aatgcgcacaaagcatalagaagccgttaagaatcatttttagcgcaatgcacccgttcaaa	960
QY	961	ggagattggagcgtgttcgggggaaatacagcgttggcgcgacatacggcacatccgttcaag	1020
Dp	961	ggagattggagcgtgtgttcgggggaaatacagcgttggcgcgacatacggcacatccgttcaag	1020
QY	1021	cggtcgcaagatggcgcgagatccgatttgcgaagaaggaaatccgcgttcgacgacaaattt	1080
Dp	1021	cggtcgcaagatggcgcgagatccgatttgcgaagaaggaaatccgcgttcgacgacaaattt	1080
QY	1081	ggcgatccgcatcgcgcacaaataccgcttcccttaccatcccgaaataatccgtttcaaac	1140
Dp	1081	ggcgatccgcatcgcgcacaaataccgcttcccttaccatcccgaaataatccgtttcaaac	1140
QY	1141	ttggaagcagcgcttccgycacaaagaatacctaactctcaacacgctgcgcgcgttcaaacgga	1200
Dp	1141	ttggaagcagcgcttccgycacaaagaatacctaactctcaacacgctgcgcgcgttcaaacgga	1200
QY	1201	aagatattggaacattggcaacaaacaccccgacccgaagacaaagatgtcgcgttttagcgttaa	1260
Dp	1201	aaaaattgcaaacattggcaacaaacaccccgacccgaagacaaagatgtcgcgttttagcgttaa	1260
QY	1261	gggttcccgaaatttggaaaaagcgttaaaatacagatacgaagaattataa 1309	

Db 1261 gggttccgaatttgagagcagctgtaataatgatcaagaagctcgata 1309  
|||||  
|||||

RESULT 4  
AAAF21608  
ID AAFF21608 standard; DNA; 349980 BP.  
XX  
AC AAF21608;  
XX  
DT 13-MAR-2001 (first entry)  
XX  
DE Neisseria meningitidis B nucleotide sequence SEQ ID NO:109.  
XX  
KW Neisseria meningitidis; Neisseria gonorrhoeae; immunogenic; vaccine;  
KM diagnosis; antigen; detection; infection; gene therapy; antibacterial;  
ds.  
XX  
OS Neisseria meningitidis.  
PN MO20006791-A1.  
PD  
PM 09-NOV-2000.  
XX  
PF 08-MAR-2000; 2000WO-USO5928.  
XX  
PR 30-APR-1999; 99US-0132068.  
PR 08-OCT-1999; 99WO-US23573.  
PR 28-FEB-2000; 2000GB-0004695.  
PA (CHIR ) CHIRON CORP.  
PA (GENO-) INST GENOMIC RES.  
XX  
PI Pienza M, Hickey E, Peterson J, Tettelin H, Venter JC, Masignani V,  
PI Galeotti C, Mora M, Ratti G, Scarselli M, Scarlato V, Rappuoli R;  
PI Frazer CM, Grandi G;  
DR WPI: 2000-647603/62.

Neisseria meningitidis B full length genome sequence and open reading frames are used to detect, treat and prevent Neisserial infections -

xx  
xx  
xx  
PS Claim 7; Appendix A; 692pp; English.

The present invention describes the full length genome of Neisseria meningitidis B (NMB). The sequences in AAF21544 and AAF21607 to AAF21613 represent fragments of the NMB genomic sequence, as the sequence was too long to go in a record on its own it was split into 8 sequences which overlap each other at the beginning and end of each sequence by 49980 bp (i.e. the last 49980 bp of AAF21544 is repeated at the beginning of AAF21607, the last 49980 bp of AAF21607 are repeated at the beginning of AAF21608, and so on). AAF21545 to AAF21588 encode the Neisseria proteins given in AAB58550 to AAB58593, and AAF21589 to AAF21606 represent PCR primers which are used in the exemplification of the present invention. The NMB genome and fragments from it have antibacterial activity, and can be used in vaccines and gene therapy. Neisseria nucleic acids, proteins and/or antibodies which binds to the proteins can be used in compositions for treating or preventing infection due to Neisserial bacteria or as a diagnostic reagent for detecting the presence of Neisserial bacteria or of antibodies raised to Neisserial bacteria. Computers, computer memory, computer storage medium or computer databases can be used in a search to identify open reading frames (ORFs) or coding sequences within the NMB genome. The DNA sequences provide further opportunities to find antigenic or immunogenic proteins which are most effective in vaccines than the outer membrane proteins currently used.

SEQ Sequence 349980 BP; 82523 A; 82940 C; 96712 G; 87805 T; 0 other;

Query Match 74.7%; Score 1248.2; DB 21; Length 349980;  
Best Local Similarity 97.1%; Fred. No. 0;  
Matches 1771; Conservative 0; Mismatches 38; Indels 0; Gaps 0;

QY 1 ttgggcatctccgcgaataatcccttatctgtccatactgagctgtgctccgcatg 60  
|||||  
Db 75614 ttgggcatctccgcgaataatcccttatctgtccatactgagctgtgctccgcatg 75673  
QY 61 catgacacgcctcagatcttgcaaacgattctttatccgcaggtttctgcagcctcag 120  
|||||  
Db 75674 catgacacgcctcagatcttgcaaacgattctttatccgcaggtttctgcagcctcag 75733  
QY 121 cattcgcaaccgcagcgggaataatcacctattcggcagcaggggggaacttgcagcgc 180  
|||||  
Db 75734 cattcgcaaccgcagcgggaataatcacctattcggcagcaggggggaacttgcagcgc 75793  
QY 181 agcggtatccgatttggaataatcaaacgcatcagttgggcaacccgttataccag 240  
|||||  
Db 75794 agcggtatccgatttggaataatcaaacgcatcagttgggcaacccgttataccag 75853  
QY 241 caaggcgcgcatlaaggaataatcgcgtacatgtccgatttccgcgtccgcagcagaa 300  
|||||  
Db 75854 caaggcgcgcatlaaggaataatcgcgtacatgtccgatttccgcgtccgcagcagaa 75913  
QY 301 gtccattccctccgcagacaacatgctcaccattcgcattctgaatgaagccgttaagtc 360  
|||||  
Db 75914 gtccattccctccgcagacaacatgctcaccattcgcattctgaatgaagccgttaagtc 75973  
QY 361 gttacgagattcagcctttaccgcatcattggagcagatagcaaacacatccgcgcagc 420  
|||||  
Db 75974 gttacgagattcagcctttaccgcatcattggagcagatagcaaacacatccgcgcagc 76033  
QY 421 ggtatagcagggccacagcggcggtatccgcgtccccaagcgcgagagatataac 480  
|||||  
Db 76034 ggtatagcagggccacagcggcggtatccgcgtccccaagcgcgagagatataac 76093  
QY 481 agctacgacaataaaggcgtgtgcccataatccgcctcaacctgacgcgaacacgcgcagc 540  
|||||  
Db 76094 agctacgacaataaaggcgtgtgcccataatccgcctcaacctgacgcgaacacgcgcagc 76153  
QY 541 accgcgaacagcgtgtgacgcgtttccacataccggtatgtgtcgaagcagaagatga 600  
|||||  
Db 76154 accgcgaacagcgtgtgacgcgtttccacataccggtatgtgtcgaagcagaagatga 76213  
QY 601 ggcgcagcagattcaaacgcgcacccgcatatagcccgagcttgagacagatcgcgaatgac 660  
|||||  
Db 76214 ggcgcagcagattcaaacgcgcacccgcatatagcccgagcttgagacagatcgcgaatgac 76273  
QY 661 gccgaagccttcaacgagcagatcagatattcgtcaaaaacatcgcggcgagagagaa 720  
|||||  
Db 76274 gccgaagccttcaacgagcagatcagatattcgtcaaaaacatcgcggcgagagagaa 76333  
QY 721 attgtcgcgcagcagcagcgtgcgcaggtatagcgaagcgtccaaacatttgtttatg 780  
|||||  
Db 76334 attgtcgcgcagcagcagcgtgcgcaggtatagcgaagcgtccaaacatttgtttatg 76393  
QY 781 caagcgttgggtcgtcttccacgcgaataaagatgagcgcgcatcaacgatttggcagat 840  
|||||  
Db 76394 caagcgttgggtcgtcttccacgcgaataaagatgagcgcgcatcaacgatttggcagat 76453  
QY 841 atggcgcaactcaagaactatgcccgcagagcagcagcagatttggcagatccaaacccc 900  
|||||  
Db 76454 atggcgcaactcaagaactatgcccgcagagcagcagcagatttggcagatccaaacccc 76513  
QY 901 aatgcccgaacaagcagatagaagccgtcagcaaatatttcaagcgcgtacccgcgtcaaa 960  
|||||  
Db 76514 aatgcccgaacaagcagatagaagccgtcagcaaatatttcaagcgcgtacccgcgtcaaa 76573  
QY 961 gggattgggctgttccggggaataatcggcttggcgagcagcagcagcagcagcagcag 1020  
|||||  
Db 76574 gggattgggctgttccggggaataatcggcttggcgagcagcagcagcagcagcagcag 76633  
QY 1021 cggtcgcaatgagcagacatcgcattgcccgaaggaataccgcgtaagcgaacatttt 1080  
|||||  
Db 76634 cggtcgcaatgagcagacatcgcattgcccgaaggaataccgcgtaagcgaacatttt 76693

QY 1081 gccgatgagcagcatagcccaataatcccgctcccttaccattccgcgaataatccggtcaaac 1140  
|||||  
Db 76694 gccgatgagcagcatagcccaataatcccgctcccttaccattccgcgaataatccggtcaaac 76753  
QY 1141 ttggagcagcgtttacgagcaagaataatcactcctcaacgcgttgcgcgtcaacgga 1200  
|||||  
Db 76754 ttggagcagcgtttacgagcaagaataatcactcctcctcaacgcgttgcgcgtcaacgga 76813  
QY 1201 aagaatgtgaacttgcaacaacacgcccacccgaagacaaagtgcgtttgaggttaa 1260  
|||||  
Db 76814 aagaatgtgaacttgcaacaacacgcccacccgaagacaaagtgcgtttgaggttaa 76873  
QY 1261 gggttccgaatttgaataaagcgttaataatagatagatagaatataa 1309  
|||||  
Db 76874 gggttccgaatttgaataaagcgttaataatagatagatagaatataa 76922

## RESULT 5

AA12173  
ID AA12173 standard; DNA; 1887 BP.

AC AA12173;

DT 08-OCT-1999 (first entry)

DE Neisseria gonorrhoeae complete ORF46 sequence.

KW Neisseria meningitidis; Neisseria gonorrhoeae; antigen; vaccine;

KW treatment; Neisseria infection; meningitis; septicemia; gonorrhea; ss.

OS Neisseria gonorrhoeae.

PN W09924578-A2.

PD 20-MAY-1999.

PF 09-OCT-1998; 98WO-1B01665.

PR 01-SEP-1998; 98GB-0019016.

PR 06-NOV-1997; 97GB-0023516.

PR 14-NOV-1997; 97GB-0024190.

PR 18-NOV-1997; 97GB-0024386.

PR 27-NOV-1997; 97GB-0025158.

PR 10-DEC-1997; 97GB-0026147.

PR 14-JAN-1998; 98GB-0000759.

PA (CHIR-) CHIRON SPA.

PI Grandi G, Maignani V, Pizza M, Rappuoli R, Scarlato V;

DR WPI: 1999-327407/27.

DR P-PSDB: AAY38730.

XX

XX

XX

XX

XX

XX

XX

XX

XX

XX

Claim 9; Page 274-275; 524pp; English.

Nucleotide sequences AA11972-212358 represent open reading frames (ORFs) of *Neisseria meningitidis* and *N. gonorrhoeae* which encode antigenic proteins (see AAY38499-Y38944). The antigenic proteins, their fragments, their nucleic acids and antibodies are used for diagnosis, prevention (as vaccines) or treatment of *Neisseria* infections, such as meningitis, septicemia and gonorrhea. Both organisms are closely related. Fragments of the nucleic acids are useful as hybridisation probes and antisense reagents.

Sequence 1887 BP; 555 A; 468 C; 493 G; 370 T; 1 other;

Query Match 73.7%; Score 1231.2; DB 20; Length 1887;  
Best Local Similarity 96.3%; Pred. No. 0;  
Matches 1260; Conservative 0; Mismatches 49; Indels 0; Gaps 0;

```

QY 1 ttgggcatcccgcaaaatatacccttattcttccatctgagcagtgctgcccagatg 60
DB 1 ttgggcatctcccgcaaaatatacccttattcttccatctgagcagtgctgcccagatg 60
QY 61 catgcaacgcgtcctagatttgcaaacagatcttcttaccgagaggttcttcgacgctca 120
DB 61 catgcaacgcgtcctagatttgcaaacagatcttcttaccgagaggttcttcgacgctca 120
QY 121 cattcgaaacgcgagcaggaataacacacttctcgacagcaggggggaacttgcgcagc 180
DB 121 cattcgaaacgcgagcaggaataacacacttctcgacagcaggggggaacttgcgcagc 180
QY 181 agcgtatctatcgatttggaataacatacaagacatcaagtgtggcaccgttccatccag 240
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QY 301 gtccattcccccttcgcaacacatgctcactcattccgattctgtatgaagccggtatccc 360
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QY 361 gtgacgagattcaagccttaccgcatcttggagcagatagcaaacacacccctccgcgcag 420
DB 361 gtgacgagattcaagccttaccgcatcttggagcagatagcaaacacacccctccgcgcag 420
QY 421 ggtatgacgagcgcacagcagcgcgctacccgctcccaagcgcgagaggaatatac 480
DB 421 ggtatgacgagcgcacagcagcgcgctacccgctcccaagcgcgagaggaatatac 480
QY 481 agctacgacataaaggcgtttgcccataataccgctcaacctgaccgcaacccgagc 540
DB 481 agctacgacataaaggcgtttgcccataataccgctcaacctgaccgcaacccgagc 540
QY 541 accggaacacgcgtctgctcgcacgcttccacaataccgctgtagtgcgacgcaagagta 600
DB 541 accggaacacgcgtctgctcgcacgcttccacaataccgctgtagtgcgacgcaagagta 600
QY 601 ggcgacgagatcaaacgcgcaccccgatatacagcccgagctggaacagatgcgcgaatgc 660
DB 601 ggcgacgagatcaaacgcgcaccccgatatacagcccgagctggaacagatgcgcgaatgc 660
QY 661 gccgaagcttcaacgcgcacgctgagatctgtaaaacatccatcgccgagcagagagaa 720
DB 661 gccgaagcttcaacgcgcacgctgagatctgtaaaacatccatcgccgagcagagagaa 720
QY 721 atttcgacgagcagatgctcgtctgacaggtataagcgaagctcaaacatctgctatg 780
DB 721 atttcgacgagcagatgctcgtctgacaggtataagcgaagctcaaacatctgctatg 780
QY 781 caagcgttggtctgtcttccacgcaaaacagatggcgagcatcaacgatttggcagat 840
DB 781 caagcgttggtctgtcttccacgcaaaacagatggcgagcatcaacgatttggcagat 840
QY 841 atggcgcaactcaagaactatgcccgcagccatcccgcatgtgggaggttccaaacccc 900
DB 841 atggcgcaactcaagaactatgcccgcagccatcccgcatgtgggaggttccaaacccc 900
QY 901 aatgcgcacaaagcatagaagcgcgtacgacatacttcttcgagcagatcccccgtcaaa 960
DB 901 aatgcgcacaaagcatagaagcgcgtacgacatacttcttcgagcagatcccccgtcaaa 960
QY 961 gggattggagctgtctcgagggaataacagcgttggcgagcatcacgagacatcttgaag 1020
DB 961 gggattggagctgtctcgagggaataacagcgttggcgagcatcacgagacatcttgaag 1020
QY 1021 cggcgacagatggcgagatgcatttgcgaagaaggaatccgcgcgcacagcaaatctt 1080
DB 1021 cggcgacagatggcgagatgcatttgcgaagaaggaatccgcgcgcacagcaaatctt 1080

```

```

QY 1081 gccgatgcgagcatagcgaacatccgctcccttaccatctccggaatatccgttcaaac 1140
DB 1081 gccgatgcgagcatagcgaacatccgctcccttaccatctccggaatatccgttcaaac 1140
QY 1141 ttggaagcagctttagcgcgaagaacacatcaactcctcaacccgtgcgcgttcaaacgga 1200
DB 1141 ttggaagcagctttagcgcgaagaacacatcaactcctcaacccgtgcgcgttcaaacgga 1200
QY 1201 aagatgtgaaactgccaacaaacgcaccccggaagaccaaagtgctgttgagcgtataa 1260
DB 1201 aagatgtgaaactgccaacaaacgcaccccggaagaccaaagtgctgttgagcgtataa 1260
QY 1261 gggttccgaatttgaagaagcgtataacgatacgaatagatataa 1309
DB 1261 gggttccgaatttgaagaagcgtataacgatacgaatagatataa 1309

```

```

RESULT 6
AAS43881
ID AAS43881 standard; DNA; 2028 BP.
XX
AC AAS43881;
XX
DT 18-DEC-2001 (first entry)
XX
DE Neisseria meningitidis fusion protein delta-G741-ORF46.1 DNA.
XX
KW Neisseria gonorrhoeae; leader peptide; fusion protein; ORF46.1; ds;
XX
OS Neisserial protein.
XX
PN Neisseria meningitidis.
XX
WO200164922-A2.
XX
PD 07-SEP-2001.
XX
PF 28-FEB-2001; 2001WO-1B00452.
XX
PR 28-FEB-2000; 2000GB-0004695.
XX
PR 13-NOV-2000; 2000GB-0027675.
XX
PA (CHIR-) CHIRON SPA.
XX
PI Arico MB, Comanducci M, Galeotti C, Masignani V, Gulliani MM;
XX
PI Pizza M;
XX
DR WPI: 2001-582163/65.
XX
DR P-PSDB: AMU27582.
XX
PT Producing heterologous proteins from Neisseria meningitidis and N.
XX
PT gonorrhoeae -
XX
PS Example 15; Page 53; 119pp; English.
XX
CC The invention relates to methods for the heterologous expression of
XX
CC Neisserial proteins from Neisseria meningitidis and Neisseria
XX
CC gonorrhoeae. At least one domain in the protein is deleted, e.g. the
XX
CC leader peptide, and may be replaced by a domain from a different protein
XX
CC to make a fusion protein, in order to enhance heterologous expression of
XX
CC Neisserial proteins. Also, a region of a protein, such as a poly-glycine
XX
CC stretch, can be mutated to enhance expression. The proteins used in the
XX
CC processes include ORF46.1, 287, 741, 919, 953, 961 and 983. Sequences
XX
CC AAS43881-AAS43905 represent DNA molecules encoding Neisserial proteins
XX
CC and peptide regions of proteins of the invention.
XX
SQ Sequence 2028 BP; 557 A; 577 C; 531 G; 363 T; 0 other;

```

Query Match 70.4%; Score 1176.2; DB 22; Length 2028;  
 Best Local Similarity 97.3%; Pred. No. 0;  
 Matches 1196; Conservative 0; Mismatches 33; Indels 0; Gaps 0;



QY 71 cctcagattgcaaacgattcttattccggcagggttcctcgaccgtcagcatttcgaac 130  
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 Db 773 cctcagattgcaaacgattcttattccggcagggttcctcgaccgtcagcatttcgaac 832  
 ||||||||||||||||||||||||||||||||||||||||||||||||||||||||  
 QY 131 ccgacgggaaataacacatttcggcagcagggggaaatttcggagcgccgtatata 190  
 ||||||||||||||||||||||||||||||||||||||||||||||||||||||||  
 Db 833 ccgacgggaaataacacatttcggcagcagggggaaatttcggagcgccgtatata 892  
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 QY 191 tccgatttggaataacatacaaacgcatcagtttgcgaaccttgcacagagcgccga 250  
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 Db 893 tccgatttggaataacatacaaacgcatcagtttgcgaaccttgcacagagcgccga 952  
 ||||||||||||||||||||||||||||||||||||||||||||||||||||||||  
 QY 251 ttaagaagaatacgcgtacatttgcgcttccgattcacaggcgcaagttccatccc 310  
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 Db 953 ttaagaagaatacgcgtacatttgcgcttccgattcacaggcgcaagttccatccc 1012  
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 QY 311 ccttcgacaacacattgcctacattccgatttctgattgaagccgggttagtccgttaagcat 370  
 ||||||||||||||||||||||||||||||||||||||||||||||||||||||||  
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 QY 371 tcaagccttaacgcataccatttggcagcagatacgaacacacccgcgcagcgtatagc 430  
 ||||||||||||||||||||||||||||||||||||||||||||||||||||||||  
 Db 1073 ttagccttaccgcataccatttggcagcagatacgaacacacccgcgcagcgtatagc 1132  
 ||||||||||||||||||||||||||||||||||||||||||||||||||||||||  
 QY 431 ggcacagaggcgcggtatcccgctcccaaggcgcgaggagatatacagctacgaca 490  
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 Db 1133 ggcacagaggcgcggtatcccgctcccaaggcgcgaggagatatacagctacgaca 1192  
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 ||||||||||||||||||||||||||||||||||||||||||||||||||||||||  
 QY 551 ggcttgcacacgcttccacaataccggttagttagtgcgcagcagagtaggcagcagat 610  
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 QY 611 tcaaacgcgccaccccgataacagcccgagctggagacagatccggcaatgcgcgagact 670  
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 Db 1313 tcaaacgcgccaccccgataacagcccgagctggagacagatccggcaatgcgcgagact 1372  
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 QY 671 tcaaacgcgccaccccgataacagcccgagctggagacagatccggcaatgcgcgagact 730  
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 Db 1373 tcaaacgcgccaccccgataacagcccgagctggagacagatccggcaatgcgcgagact 1432  
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 QY 731 caggcgatgcgcttgcagaggtataagcggaaggtcaaatctgtcttatgcagcgcttgg 790  
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 QY 791 gtctgcttccacccgaataacagatgtggcgcatcaacgatttggcagatatagtcgcaac 850  
 ||||||||||||||||||||||||||||||||||||||||||||||||||||||||  
 Db 1493 gtctgcttccacccgaataacagatgtggcgcatcaacgatttggcagatatagtcgcaac 1552  
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 QY 851 tcaaaagcattatgcgcagcagcagccatcccgatttggcagctcaaaaaccccatccgcac 910  
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 Db 1553 tcaaaagcattatgcgcagcagcagccatcccgatttggcagctcaaaaaccccatccgcac 1612  
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 ||||||||||||||||||||||||||||||||||||||||||||||||||||||||  
 Db 1613 aagcgatagaagccgctcagcaatacttcttaccgagctatcccgctcaaaaggattggag 1672  
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 QY 971 ctgttcggggaataatagcgttggcgcgcatcagcgacatccgctcaaaagcgctcgaga 1030  
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 Db 1673 ctgttcggggaataatagcgttggcgcgcatcagcgacatccgctcaaaagcgctcgaga 1732  
 ||||||||||||||||||||||||||||||||||||||||||||||||||||||||  
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 QY 1091 catacgccaataaccgctcccttaccattccgcaaatatccgcttcaaaccttggagcagc 1150  
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 Db 1793 catacgccaataaccgctcccttaccattccgcaaatatccgcttcaaaccttggagcagc 1852  
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 QY 1151 gttacggcaagaataacataccctcccaacgctgcccgcgttcaaacggaagaatgtga 1210  
 ||||||||||||||||||||||||||||||||||||||||||||||||||||||||

Db 1853 gttacggcaagaataacataccctcccaacgctgcccgcgtcaaacgcaaaatgtca 1912  
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 QY 1211 aacttggcaaaccaacgcccacccggaagaagatgcgctttagcgttgaagggtttccga 1270  
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 Db 1913 aacttggcaaaccaacgcccacccggaagaagatgcgctttagcgttgaagggtttccga 1972  
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 QY 1271 atttgaagaagcgtcaaatatcagatagc 1299  
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 Db 1973 atttgaagaagcgtcaaatatcagatagc 2001  
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RESULT 7  
 AAD17046  
 ID AAD17046 standard; DNA; 2028 BP.  
 XX  
 AC AAD17046;  
 XX  
 DT 29-NOV-2001 (first entry)  
 XX  
 DE N. meningitidis strain 2996 delta G741-ORF46.1 fusion DNA.  
 XX  
 KW Heterologous expression; Neisserial protein; open reading frame; ORF;  
 XX delta G741-ORF46.1 fusion protein; ds.  
 XX  
 OS Neisseria meningitidis 2996.  
 XX  
 FH Key Location/Qualifiers  
 FT CDS 1..2028  
 FT /tag= a  
 FT /product= "N. meningitidis strain 2996 delta  
 FT G741-ORF46.1 fusion protein"  
 PN WO200164920-A2.  
 PN  
 PD 07-SRP-2001.  
 PF 28-FEB-2001; 2001WO-1B00420.  
 PR 28-FEB-2000; 2000GB-0004695.  
 PR 13-NOV-2000; 2000GB-0027675.  
 PA (CHTR-) CHTRON SPA.  
 PI Arico MB, Comanducci M, Galeotti C, Masignani V, Giuliani MM;  
 PI Pizza M;  
 PI  
 DR WPI: 2001-557776/62.  
 DR P-PSDB: AAE10031.  
 PT Heterologous expression for the expression of two or more Neisserial  
 PT proteins in fused state  
 PS Example 4; Page 21-22; 52pp; English.  
 PS  
 CC The present invention relates to a method for simultaneous heterologous  
 CC expression of two or more Neisserial proteins which are in a fused  
 CC state. The method is useful for simultaneous heterologous expression of  
 CC two or more Neisserial proteins. A protein that may be unstable or  
 CC poorly expressed on its own is assisted by adding a suitable hybrid  
 CC partner and commercial manufacture is simplified only one expression and  
 CC purification need to be employed in order to produce two separately-  
 CC useful proteins. The present sequence is a DNA encoding  
 CC Neisseria meningitidis (serogroup B, strain 2996) delta G741-ORF46.1  
 CC (open reading frame) fusion protein.  
 CC  
 SQ Sequence 2028 BP; 557 A; 577 C; 531 G; 363 T; 0 other;

Query Match 70.4%; Score 1176.2; DB 22; Length 2028;  
 Best Local Similarity 97.3%; Pred. No. 0;  
 Matches 1196; Conservative 0; Mismatches 33; Indels 0; Gaps 0;



[illegible]

Db	1653	gttcgcgaagaagaataatactctctccacacgctgcgcgcgtcaaacgcaaaatgtca	1912
Qy	1211	aactggcaaacaaacgcaccgcgaagacccaagtgcgctttgacggttaagggtttccga	1270
Db	1913	aactggcaagaccacgcaccgcgaagacgaagcgctaccgcttgacggttaagggtttccga	1972
Qy	1271	atttgaagaagacgttaaatagatcgc	1299
Db	1973	atttgaagaagacgctgaatatatgacgc	2001
<p>RESULT 8</p> <p>AAS43874</p> <p>ID AAS43874 standard; DNA: 4425 BP.</p> <p>AC AAS43874;</p> <p>XX</p> <p>DT 18-DEC-2001 (first entry)</p> <p>XX</p> <p>DE Neisseria meningitidis fusion protein delta-G983-ORF46.1 DNA.</p> <p>XX</p> <p>KM Neisseria gonorrhoeae; leader peptide; fusion protein; ORF46.1; ds;</p> <p>XX Neisserial protein.</p> <p>XX</p> <p>OS Neisseria meningitidis.</p> <p>OS Synthetic.</p> <p>PN WO200164922-A2.</p> <p>PD 07-SEP-2001.</p> <p>XX</p> <p>PF 28-FEB-2001; 2001WO-IB00452.</p> <p>XX</p> <p>PR 28-FEB-2000; 2000GB-0004695.</p> <p>XX 13-NOV-2000; 2000GB-0027675.</p> <p>XX</p> <p>PA (CHTR-) CHIRON SPA.</p> <p>XX</p> <p>PI Arico MB, Comanducci M, Galeotti C, Masignani V, Gulliani MM;</p> <p>PI Pizza M;</p> <p>XX</p> <p>DR WPI: 2001-582163/65.</p> <p>DR P-PeDB; AAU27575.</p> <p>XX</p> <p>PT Producing heterologous proteins from Neisseria meningitidis and N.</p> <p>PT gonorrhoeae -</p> <p>XX</p> <p>PS Example 15; Page 42-43; 119p; English.</p> <p>XX</p>			
CC	The invention relates to methods for the heterologous expression of		
CC	Neisserial proteins from Neisseria meningitidis and Neisseria		
CC	gonorrhoeae. At least one domain in the protein is deleted, e.g. the		
CC	leader peptide, and may be replaced by a domain from a different protein		
CC	to make a fusion protein, in order to enhance heterologous expression of		
CC	Neisserial proteins. Also, a region of a protein, such as a poly-glycine		
CC	stretch, can be mutated to enhance expression. The proteins used in the		
CC	processes include ORF46.1, 287, 741, 919, 953, 961 and 983. Sequences		
CC	AAS4386-AAS4395 represent DNA molecules encoding Neisserial proteins		
CC	and peptide regions of proteins of the invention.		
XX			
XX	Sequence 4425 BP; 1165 A; 1259 C; 1219 G; 782 T; 0 other;		
Qy	Query Match 70.4%; Score 1176.2; DB 22; Length 4425;		
Db	Best Local Similarity 97.3%; Pred. No. 0;		
	Matches 1196; Conservative 0; Mismatches 33; Indels 0; Gaps 0;		
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Db	3170 cctcagattggcaaacagatctttatccgcgcaggttctcgaccgtcagcatttcgaac		3229
Qy	131 ccgacgggaataaccaccttctgcgcgcagcgggggaacttgcgcgcgcgcgcggtcata		190

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Db 3230 ccaagcgggaaataaccatttcgagcagcggggaacttcgagcggcggcaca 3289
Qy 191 tcgattgggaaataataaagccatcagttgggcaacccttcaacagcggcga 250
Db 3290 tcgattgggaaataataaagccatcagttgggcaacccttcaacagcggcga 3349
Qy 251 ttaaagaataatcgtctacattgtccctttccgattccagcagcgaagtcattccc 310
Db 3350 ttaaagaataatcgtctacattgtccctttccgattccagcagcgaagtcattccc 3409
Qy 311 ccttcgaacaaccatgacctcattccgattctgaatgaagcggtagtcctgtacggat 370
Db 3410 ccttcgaacaaccatgacctcattccgattctgaatgaagcggtagtcctgtacggat 3469
Qy 371 tcaagccttaccgcatcattgagcagatagcagaacaccatcccgccgagcgtataag 430
Db 3470 ttagccttaccgcatcattgagcagatagcagaacaccatcccgccgagcgtataag 3529
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Db 3530 ggcacagggcgcggtgtatcccgctcccaagcgcgaggaatatataagctacgaca 3589
Qy 491 taaaagcgcttgcacaaatatacgcctcaactgaacccgacacccgacgacgacaac 550
Db 3590 taaaagcgcttgcacaaatatacgcctcaactgaacccgacacccgacgacgacaac 3649
Qy 551 ggccttgcagcgtttcccaatacagtgtagtctgaacgagagtagcagagat 610
Db 3650 ggccttgcagcgtttcccaatacagtgtagtctgaacgagagtagcagagat 3709
Qy 611 tcaaacgcgcacccgatacagcccgagctggacagatccgggcaattgcgcgagctt 670
Db 3710 tcaaacgcgcacccgatacagcccgagctggacagatccgggcaattgcgcgagctt 3769
Qy 671 tcaaacgcgcacccgatacagcccgagctggacagatccgggcaattgcgcgagctt 730
Db 3770 tcaaacgcgcacccgatacagcccgagctggacagatccgggcaattgcgcgagctt 3829
Qy 731 caggcagtcgctgagggatataagcgaagctcaaaatctgtctatgcagcgttgg 790
Db 3830 caggcagtcgctgagggatataagcgaagctcaaaatctgtctatgcagcgttgg 3889
Qy 791 gctcgtctccacccaagaagagcgagcagatcagatcttgcaatctgagcagac 850
Db 3890 gctcgtctccacccaagaagagcgagcagatcagatcttgcaatctgagcagac 3949
Qy 851 tcaagactatgacgacagcagcagcagcttgagcagctcaaaaccccaatgcgac 910
Db 3950 tcaagactatgacgacagcagcagcagcttgagcagctcaaaaccccaatgcgac 4009
Qy 911 aagcatalaagcgcgtcagcaatatctttaagcagatcccccgtcaaaaggattggag 970
Db 4010 aagcatalaagcgcgtcagcaatatctttaagcagatcccccgtcaaaaggattggag 4069
Qy 971 ctgttcggggaataatcagcgttggcgagcagcagacatccgtcaacggttcgaga 1030
Db 4070 ctgttcggggaataatcagcgttggcgagcagcagacatccgtcaacggttcgaga 4129
Qy 1031 tggcgagatcgatcgtcgaagaagggaatccgcgcgcagcgaacatttgcgcagtcgag 1090
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Qy 1091 catacgcaaatcccgcttcccttaccatccgaaatatccgttcaaaatttgaagcagc 1150
Db 4190 catacgcaaatcccgcttcccttaccatccgaaatatccgttcaaaatttgaagcagc 4249
Qy 1151 gttacggcaagaataatcactcctcaacgctgcgcgcgtcaaaaggaaagatgta 1210
Db 4250 gttacggcaagaataatcactcctcaacgctgcgcgcgtcaaaaggaaagatgta 4309
Qy 1211 aactggcaaaacgacccgagacgaagtgccgttgaaggttaagggttcgga 1270

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Db 4310 aactggcagacgaacccaccgcaagaagcgtaccgttgaaggttaagggttcgga 4369
Qy 1271 atttgaagaagacgttaaaatacagatac 1299
Db 4370 atttgaagaagacgttgaataatgatac 4398

RESULT 9
AADI7039
ID AADI7039 standard; DNA; 4425 BP.
XX
AC AADI7039;
XX
DT 29-NOV-2001 (first entry)
DE N. meningitidis strain 2996 delta G983-ORF46.1 fusion DNA.
XX
KW Heterologous expression; Neisserial protein; open reading frame; ORF;
delta G983-ORF46.1 fusion protein; ds.
XX
OS Neisseria meningitidis 2996.
XX
FH Key Location/Qualifiers
FT CDS 1..4425
FT /*tag= a
FT /product= "N. meningitidis strain 2996 delta
FT G983-ORF46.1 fusion protein"
XX
PD WO200164920-A2.
XX
PE 07-SEP-2001.
XX
PE 28-FEB-2001; 2001WO-1B00420.
XX
PR 28-FEB-2000; 2000GB-0004695.
PR 13-NOV-2000; 2000GB-0027675.
XX
PA (CHIR-) CHIRON SPA.
XX
PI Arico MB, Comanducci M, Galeotti C, Masiagnani V, Giuliani MM;
PI Pizzza M;
XX
DR MPI: 2001-557776/62.
DR P-PSDB; AAEI0022.
XX
PT Heterologous expression for the expression of two or more Neisserial
PT proteins in fused state
XX
PS Example 3; Page 13-14; 52pp; English.
XX
CC The present invention relates to a method for simultaneous heterologous
CC expression of two or more Neisserial proteins which are in a fused
CC state. The method is useful for simultaneous heterologous expression of
CC two or more Neisserial proteins. A protein that may be unstable or
CC poorly expressed on its own is assisted by adding a suitable hybrid
CC partner and commercial manufacture is simplified-only one expression and
CC purification need to be employed in order to produce two separately-
CC useful proteins. The present sequence is a DNA encoding
CC Neisseria meningitidis (serogroup B, strain 2996) delta G983-ORF46.1
CC (open reading frame) fusion protein.
XX
SQ Sequence 4425 BP; 1165 A; 1259 C; 1219 G; 782 T; 0 other;

Query Match 70.4%; Score 1176.2; DB 22; Length 4425;
Best Local Similarity 97.3%; Pred. No. 0;
Matches 1196; Conservative 0; Mismatches 33; Indels 0; Gaps 0;

Qy 71 cctcagattggcaaacagatctttatccgacgggttcgcagcgtcagcattcgaaac 130
Db 3170 cctcagattggcaaacagatctttatccgacgggttcgcagcgtcagcattcgaaac 3229
Qy 131 ccgacgggaaataaccatttcgagcagcggggaacttcgagcggcggcgcacata 190

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Db 3290 tcgatttgggaaacatacaagaacatcatttgggcaactgttcatccgagcgccca 3349
Qy 251 ttaagaagaatattcgctacattgttcgcttttcgcatcagggcaagatccattccc 310
Db 3350 ttaagaagaatattcgctacattgttcgcttttcgcatcagggcaagatccattccc 3409
Qy 311 ccttcgacaacacatgcctcaacatctccgatttgaatgaagccggtatccggttgaagcgt 370
Db 3410 ccttcgacaacacatgcctcaacatctccgatttgaatgaagccggtatccggttgaagcgt 3469
Qy 371 tcagccttaccgcatccatttggagcgatagcaacacatcccgagcggtatgacg 430
Db 3470 ttagccttaccgcatccatttggagcgatagcaacacatcccgagcggtatgacg 3529
Qy 431 ggcacagggcgagcggtatcccgctcccaaggcgaggggatatagatagcagaca 490
Db 3530 ggcacagggcgagcggtatcccgctcccaaggcgaggggatatagatagcagaca 3589
Qy 491 taaagcgcttgcgcaaaatatacgcctcaacctgaacgacacgacgacgacgacgac 550
Db 3590 taaagcgcttgcgcaaaatatacgcctcaacctgaacgacacgacgacgacgacgac 3649
Qy 551 ggccttgcagcgtttccacaataccggtatgtctgacgacgaggaatgttcgagcgt 610
Db 3650 ggccttgcagcgtttccacaataccggtatgtctgacgacgaggaatgttcgagcgt 3709
Qy 611 tcaaacgagcagcagcagcagcagcagcagcagcagcagcagcagcagcagcagc 670
Db 3710 tcaaacgagcagcagcagcagcagcagcagcagcagcagcagcagcagcagcagc 3769
Qy 671 tcaacgagcagcagcagcagcagcagcagcagcagcagcagcagcagcagcagc 730
Db 3770 tcaacgagcagcagcagcagcagcagcagcagcagcagcagcagcagcagcagc 3829
Qy 731 caagcgatgcggtgacggtatagcgagagcctcaaacatgtctgtatagcagcgcttgg 790
Db 3830 caagcgatgcggtgacggtatagcgagagcctcaaacatgtctgtatagcagcgcttgg 3889
Qy 791 gtctgcttccacggaaataaagatgtgcgcatcgaacgtttggcgagatgtgcgcaac 850
Db 3890 gtctgcttccacggaaataaagatgtgcgcatcgaacgtttggcgagatgtgcgcaac 3949
Qy 851 tcaagaactatgcgagcagcagcagcagcagcagcagcagcagcagcagcagcagc 910
Db 3950 tcaagaactatgcgagcagcagcagcagcagcagcagcagcagcagcagcagcagc 4009
Qy 911 aagcgatagaagcgcgtacgacaatacttcttcgagcagcagcagcagcagcagcagc 970
Db 4010 aagcgatagaagcgcgtacgacaatacttcttcgagcagcagcagcagcagcagcagc 4069
Qy 971 ctgttcgggggaaatacagcgttggcgagcagcagcagcagcagcagcagcagcagc 1030
Db 4070 ctgttcgggggaaatacagcgttggcgagcagcagcagcagcagcagcagcagcagc 4129
Qy 1031 tgggcgagatcgcatctgcgaaaggaatccgcgttcagcgacacatttgcgagtcg 1090
Db 4130 tgggcgagatcgcatctgcgaaaggaatccgcgttcagcgacacatttgcgagtcg 4189
Qy 1091 catcgcaaatattccgctcccttaccattccgaaatattccggttcaacttggagcagc 1150
Db 4190 catcgcaaatattccgctcccttaccattccgaaatattccggttcaacttggagcagc 4249
Qy 1151 gttacgcaagaagaatacatcctctcaacggtgcgcgcttcaaaaggaagaatgtga 1210
Db 4250 gttacgcaagaagaatacatcctctcaacggtgcgcgcttcaaaaggaagaatgtga 4309
Qy 1211 aactggcaacaaacgcaacccggaagaagaatgtgcggttgcaggttaaaaggtttccga 1270

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Db 4310 aactggcagaccacgaccccggaagaacggtacccgttgcaggttaaaaggtttccga 4369
Qy 1271 atttggaaagaagcgttaaatatcatagcag 1299
Db 4370 atttggaaagaagcgttaaatatcatagcag 4398

RESULT 10
AAS43894
ID AAS43894 standard; DNA; 2019 BP.
XX
AC AAS43894;
XX
DT 18-DEC-2001 (first entry)
XX
DE Neisseria meningitidis fusion protein ORF46.1-741 DNA.
XX
KW Neisseria gonorrhoeae; leader peptide; fusion protein; ORF46.1; ds;
KW Neisserial protein.
XX
OS Neisseria meningitidis.
OS Synthetic.
XX
PN WO200164922-A2.
XX
PD 07-SEP-2001.
XX
PF 28-FEB-2001; 2001WO-IB00452.
XX
PR 28-FEB-2000; 2000GB-0004695.
XX
PR 13-NOV-2000; 2000GB-0027675.
XX
PA (CHIR-) CHIRON SPA.
XX
PI Arico MB, Comanducci M, Galeotti C, Maignani V, Gulliani MM;
PI Pizza M;
XX
DR WPI; 2001-582163/65.
XX
DR P-PSDB; AMU27597.
XX
PT Producing heterologous proteins from Neisseria meningitidis and N.
PT gonorrhoeae -
XX
PS
XX
Example 23; Page 63-64; 119pp; English.
XX
CC The invention relates to methods for the heterologous expression of
CC Neisserial proteins from Neisseria meningitidis and Neisseria
CC gonorrhoeae. At least one domain in the protein is deleted, e.g. the
CC leader peptide, and may be replaced by a domain from a different protein
CC to make a fusion protein, in order to enhance heterologous expression of
CC Neisserial proteins. Also, a region of a protein, such as a poly-glycine
CC stretch, can be mutated to enhance expression. The proteins used in the
CC processes include ORF46.1, 287, 741, 919, 953, 961 and 983. Sequences
CC AAS3866-AAS43905 represent DNA molecules encoding Neisserial proteins
CC and peptide regions of proteins of the invention.
XX
SQ Sequence 2019 BP; 555 A; 571 C; 531 G; 362 T; 0 other;

Query Match 70.4%; Score 1175.6; DB 22; Length 2019;
Best Local Similarity 97.2%; Pred. No. 0;
Matches 1196; Conservative 0; Mismatches 34; Indels 0; Gaps 0;

Qy 73 tcagatttggcaaacgattcttattcgcgaggttctcgcagcgtcagcagcagcagcagc 132
Db 4 tcagatttggcaaacgattcttattcgcgaggttctcgcagcgtcagcagcagcagcagc 63
Qy 133 gacgggaaatataccatttcgagcagcagggggaacttgcgagcgacgagcgtatatac 192
Db 64 gacgggaaatataccatttcgagcagcagggggaacttgcgagcgacgagcgtatatac 123
Qy 193 gatttgggaaatataccatttcgagcagcaggttgcgagcagcagcagcagcagcagc 252

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Db 124 ggatttgggaaataatacaagccatcaagtgtggcaaccctgatattcaacaggcgccatt 183
QY 253 aaaggaataatcggtcaactgttcgcgttttccgatacagggcagaaatgcatccccc 312
Db 184 aaaggaataatcggtcaactgttcgcgttttccgatacagggcagaaatgcatccccc 243
QY 313 ttccgaacacatgctcattccgattctatgaagccgttagtccgtttgaagattc 372
Db 244 ttccgaacacatgctcattccgattctatgaagccgttagtccgtttgaagattc 303
QY 373 agccttaacgcatccatttggagcagatacgaacacacaccccgccgagagatagaagg 432
Db 304 agccttaacgcatccatttggagcagatacgaacacacaccccgccgagagatagaagg 363
QY 433 ccaacaggcgagcggtatcccgctccccaagggcgagagatatacagctacagacata 492
Db 364 ccaacaggcgagcggtatcccgctccccaagggcgagagatatacagctacagacata 423
QY 493 aaagcgcttggcccaataatacgcctcaactgacgcagacacacgcagacacgcagacag 552
Db 424 aaagcgcttggcccaataatacgcctcaactgacgcagacacacgcagacacgcagacag 483
QY 553 ctgttcgacgcttccacaataccggtatgtatgtcgaagcagagagatagtcgaagattc 612
Db 484 ctgttcgacgcttccacaataccggtatgtatgtcgaagcagagagatagtcgaagattc 543
QY 613 aaacgcgcacccgatacagcccgagctgacagatcgagcgaatgcgcgaagcttc 672
Db 544 aaacgcgcacccgatacagcccgagctgacagatcgagcgaatgcgcgaagcttc 603
QY 673 aaacgcgcacccgatacagcccgagctgacagatcgagcgaatgcgcgaagcttc 722
Db 604 aaacgcgcacccgatacagcccgagctgacagatcgagcgaatgcgcgaagcttc 663
QY 723 ggcgattcgcttgcgggtatagaagagctcaaacattgtcttattgcaaggcttgggt 792
Db 664 ggcgattcgcttgcgggtatagaagagctcaaacattgtcttattgcaaggcttgggt 723
QY 793 ctgctttccacgaaacagatgagcgatcgaacgatttggcagatagtcgacacac 852
Db 724 ctgctttccacgaaacagatgagcgatcgaacgatttggcagatagtcgacacac 783
QY 853 aaagatactgcgacgagcgcacatccgatttggcagatcgaacacacacacacacacac 912
Db 784 aaagatactgcgacgagcgcacatccgatttggcagatcgaacacacacacacacacac 843
QY 913 ggcataaagccgctgcgaataatctttagcgacgtatcccgctcaaaaggattgagct 972
Db 844 ggcataaagccgctgcgaataatctttagcgacgtatcccgctcaaaaggattgagct 903
QY 973 gttcggggaaatacagcttgcgacgacacacacacacacacacacacacacacacacac 1032
Db 904 gttcggggaaatacagcttgcgacgacacacacacacacacacacacacacacacacac 963
QY 1033 ggcgagatcgcatcgcgaagggaaatccgcgcgtcagcgaacatttccgattcgagca 1092
Db 964 ggcgagatcgcatcgcgaagggaaatccgcgcgtcagcgaacatttccgattcgagca 1023
QY 1093 taagcaataatcccgctcccttaccattcccgaaataatccgcttcaaaccttggagcagct 1152
Db 1024 taagcaataatcccgctcccttaccattcccgaaataatccgcttcaaaccttggagcagct 1083
QY 1153 taagcaataatcccgctcccttaccattcccgaaataatccgcttcaaaccttggagcagct 1212
Db 1084 taagcaataatcccgctcccttaccattcccgaaataatccgcttcaaaccttggagcagct 1143
QY 1213 ctggcaacaaacgcacacccggaagacccaagtgcgcttgaagcgaagggcttccgatt 1272
Db 1144 ctggcaacaaacgcacacccggaagacccaagtgcgcttgaagcgaagggcttccgatt 1203
QY 1273 ttggaagagcgttaataatcagatcagaga 1302
Db 1204 ttggaagagcgttaataatcagatcagaga 1233

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RESULT 11
AADI7047
ID AADI7047 standard; DNA; 2019 BP.
XX
AC AADI7047;
XX
DT 29-NOV-2001 (first entry)
XX
DE N. meningitidis strain 2996 ORF46.1-741 fusion DNA.
XX
KW Heterologous expression; Neisserial protein; open reading frame; ORF;
KW ORF46.1-741 fusion protein; ds.
XX
OS Neisseria meningitidis 2996.
XX
FH Key Location/Qualifiers
FT CDS 1..2019
FT /tag= a
FT /product= "N. meningitidis strain 2996 ORF46.1-741
FT fusion protein"
XX
PN WO200164920-A2.
XX
PD 07-SEP-2001.
XX
PF 28-FEB-2001; 2001WO-1B00420.
XX
PR 28-FEB-2000; 2000GB-0004695.
PR 13-NOV-2000; 2000GB-0027675.
XX
PA (CHIR-) CHIRON SPA.
XX
PI Arico MB, Commanducci M, Galeotti C, Masignani V, Giuliani MM,
PI Pizze M;
XX
DR WPI: 2001-557776/62.
XX
DR P-PSDB; AAE10032.
XX
PT Heterologous expression for the expression of two or more Neisserial
PT proteins in fused state -
XX
PS Example 4; Page 24-25; 52pp; English.
XX
CC The present invention relates to a method for simultaneous heterologous
CC expression of two or more Neisserial proteins which are in a fused
CC state. The method is useful for simultaneous heterologous expression of
CC two or more Neisserial proteins. A protein that may be unstable or
CC poorly expressed on its own is assisted by adding a suitable hybrid
CC partner and commercial manufacture is simplified-only one expression and
CC purification need to be employed in order to produce two separately-
CC useful proteins. The present sequence is a DNA encoding
CC Neisseria meningitidis (serogroup B, strain 2996) ORF46.1 (open
CC reading frame)-741 fusion protein.
XX
SQ Sequence 2019 BP; 555 A; 571 C; 531 G; 362 T; 0 other;

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Query Match 70.4%; Score 1175.6; DB 22; Length 2019;
Best Local Similarity 97.2%; Pred. No. 0;
Matches 1196; Conservative 0; Mismatches 34; Indels 0; Gaps 0;

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Db 124 ggattgggaaaaatacaaaagccatcagltgagcaacctgtatgtaacaagcgccatt 183  
 QY 253 aaaggaataatcggctacatgttcgcttccgatatcgaggaagaaftccatccccc 312  
 Db 184 aaaggaataatcggctacatgttcgcttccgatatcgaggaagaaftccatccccc 243  
 QY 313 ttgcgaacacatgctcctacatcctcgtatgataagcggtatgcttcggtatgc 372  
 Db 244 ttgcgaacacatgctcctacatcctcgtatgataagcggtatgcttcggtatgc 303  
 QY 373 agccttaccgcatcctatgaggaaggtatgataacacatcccgccgctatgacgg 432  
 Db 304 agccttaccgcatcctatgaggaaggtatgataacacatcccgccgctatgacgg 363  
 QY 433 ccacagggcgagcggtatcctccccaagcgcgaggtatataatacaagctacgata 492  
 Db 364 ccacagggcgagcggtatcctccccaagcgcgaggtatataatacaagctacgata 423  
 QY 493 aaagcggttgcgaataataatccgctcaactgacacgaacacgacacgacgaacg 552  
 Db 424 aaagcggttgcgaataataatccgctcaactgacacgaacacgacacgacgaacg 483  
 QY 553 ctgttgacacggttccacataacggtatgataagcggtatgataagcggtatgata 612  
 Db 484 ctgttgacacggttccacataacggtatgataagcggtatgataagcggtatgata 543  
 QY 613 aaacgacccacacgataacagcccgagctggaacagatcggtacatgctcgccgaagcttc 672  
 Db 544 aaacgacccacacgataacagcccgagctggaacagatcggtacatgctcgccgaagcttc 603  
 QY 673 aaagcgatcgagatataatgataaaacatcctcgccgacgaggaagaaattgttcgacga 732  
 Db 604 aaagcgatcgagatataatgataaaacatcctcgccgacgaggaagaaattgttcgacga 663  
 QY 733 ggcgacgctggaaggtataagcgaaaggtcacaacatgctgtatgacggtgtgt 792  
 Db 664 ggcgacgctggaaggtataagcgaaaggtcacaacatgctgtatgacggtgtgt 723  
 QY 793 ctgcttccacacgaataaagatgagcgacatcaacggttggcgatgatacggaactc 852  
 Db 724 ctgcttccacacgaataaagatgagcgacatcaacggttggcgatgatacggaactc 783  
 QY 853 aaagactatcgagacgacgacatcctcggtatgagcgatcccaaaacccaatgcccgaaca 912  
 Db 784 aaagactatcgagacgacgacatcctcggtatgagcgatcccaaaacccaatgcccgaaca 843  
 QY 913 ggcataagacgctcagcaataatccttaacgcaagtatcccgctcaaaaggtgtgagct 972  
 Db 844 ggcataagacgctcagcaataatccttaacgcaagtatcccgctcaaaaggtgtgagct 903  
 QY 973 gttcggggaataatagcgcttggcgacgacatcctgtcgaagcgctcagatg 1032  
 Db 904 gttcggggaataatagcgcttggcgacgacatcctgtcgaagcgctcagatg 963  
 QY 1033 ggcgagatcgatgctcgaagaaaggaatcgcgcgtcagcgacaatttgcgattcgga 1092  
 Db 964 ggcgagatcgatgctcgaagaaaggaatcgcgcgtcagcgacaatttgcgattcgga 1023  
 QY 1093 taagcgaataatccttcccttaccatcctccgaataatccttccgaacttggagcgagct 1152  
 Db 1024 taagcgaataatccttcccttaccatcctccgaataatccttccgaacttggagcgagct 1083  
 QY 1153 taagcgaataatccttcccttaccatcctccgaataatccttccgaacttggagcgagct 1212  
 Db 1084 taagcgaataatccttcccttaccatcctccgaataatccttccgaacttggagcgagct 1143  
 QY 1213 ctggaacaaacgacaccccggaagaaacaaagtgtcgttttaaggttaaggtttccgaat 1272  
 Db 1144 ctggaacaaacgacaccccggaagaaacaaagtgtcgttttaaggttaaggtttccgaat 1203  
 QY 1273 ttggaagaagcgttaaaatacagatacagaga 1302  
 Db 1204 ttggaagaagcgttaaaatacagatacagaga 1233

RESULT 12  
 AAS43896  
 ID AAS43896 standard; DNA; 2256 BP.  
 XX  
 AC AAS43896;  
 XX  
 DI 18-DEC-2001 (first entry)  
 XX  
 DE Neisseria meningitidis fusion protein ORF46.1-961c DNA.  
 XX  
 KW Neisseria gonorrhoeae; leader peptide; fusion protein; ORF46.1; ds;  
 KW Neisserial protein.  
 OS Neisseria meningitidis.  
 OS Synthetic.  
 XX  
 PN WO200164922-A2.  
 XX  
 PD 07-SEP-2001.  
 XX  
 PF 28-FEB-2001; 2001WO-1B00452.  
 XX  
 PR 28-FEB-2000; 2000GB-0004695.  
 PR 13-NOV-2000; 2000GB-0027675.  
 XX  
 PA (CHIR-) CHIRON SPA.  
 XX  
 PI Arico MB, Comanducci M, Galeotti C, Masignani V, Giuliani MM;  
 PI Pizza M;  
 DR WPI: 2001-582163/65.  
 DR P-PSDB: AAU27599.  
 XX  
 PT Producing heterologous proteins from Neisseria meningitidis and N.  
 PT gonorrhoeae -  
 XX  
 PS Example 23; Page 65-66; 119pp; English.  
 CC The invention relates to methods for the heterologous expression of  
 CC Neisserial proteins from Neisseria meningitidis and Neisseria  
 CC gonorrhoeae. At least one domain in the protein is deleted, e.g. the  
 CC leader peptide, and may be replaced by a domain from a different protein  
 CC to make a fusion protein, in order to enhance heterologous expression of  
 CC Neisserial proteins. Also, a region of a protein, such as a poly-glycine  
 CC stretch, can be mutated to enhance expression. The proteins used in the  
 CC processes include ORF46.1, 287, 741, 919, 953, 961 and 983. Sequences  
 CC AAS43868-AAS43905 represent DNA molecules encoding Neisserial proteins  
 CC and peptide regions of proteins of the invention.  
 XX  
 SQ Sequence 2256 BP; 698 A; 608 C; 545 G; 405 T; 0 other.  
 Query Match 70.4%; Score 1175.6; DB 22; Length 2256;  
 Best Local Similarity 97.2%; Pred. No. 0;  
 Matches 1196; Conservative 0; Mismatches 34; Indels 0; Gaps 0;

QY 73 tcagattgggaacagatctttatccggcgaagttctgacggttagattggaacc 132  
 Db 4 tcagattgggaacagatctttatccggcgaagttctgacggttagattggaacc 63  
 QY 133 gacgggaataatccacattcctcgacgaagggggaacttgcgagcgacggtcatatc 192  
 Db 64 gacgggaataatccacattcctcgacgaagggggaacttgcgagcgacggtcatatc 123  
 QY 193 ggattgggaacacatataaagccatcagltgagcaacctgttcatcagcagcgcgccatt 252  
 Db 124 ggattgggaacacatataaagccatcagltgagcaacctgttcatcagcagcgcgccatt 183  
 QY 253 aaaggaataatcggctacatgttcgcttccgatatcgaggaagaaftccatccccc 312  
 Db 184 aaaggaataatcggctacatgttcgcttccgatatcgaggaagaaftccatccccc 243

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OY 313 ttgcgaacacatgctcaccatcctcgatctctgaagaacggtgagtccttcgagcagatc 372
DB 244 ttgcgaacacatgctcaccatcctcgatctctgaagaacggtgagtccttcgagcagatc 303
OY 373 agccttaccgcatcttgagcaggttaagaacacacacacacacacacacacacacacacac 432
DB 304 agccttaccgcatcttgagcaggttaagaacacacacacacacacacacacacacacacac 363
OY 433 ccacagggcggcggtcctccgctcccaaaagcgcgagggatataacacacacacacacacac 492
DB 364 ccacagggcggcggtcctccgctcccaaaagcgcgagggatataacacacacacacacacac 423
OY 493 aaagcgttgcacaaatctccgctcctaacctgaacgacacacacacacacacacacacacac 552
DB 424 aaagcgttgcacaaatctccgctcctaacctgaacgacacacacacacacacacacacacac 483
OY 553 ctgtgcacgcttcccaacacacacacacacacacacacacacacacacacacacacacacac 612
DB 484 ctgtgcacgcttcccaacacacacacacacacacacacacacacacacacacacacacacac 543
OY 613 aaacgcccacacacacacacacacacacacacacacacacacacacacacacacacacacac 672
DB 544 aaacgcccacacacacacacacacacacacacacacacacacacacacacacacacacacac 603
OY 673 aaacgcccacacacacacacacacacacacacacacacacacacacacacacacacacacac 732
DB 604 aaacgcccacacacacacacacacacacacacacacacacacacacacacacacacacacac 663
OY 733 ggcgagtcgctgacaggtataagcgaagcctcaaacatgctgtatgacagcgttgggt 792
DB 664 ggcgagtcgctgacaggtataagcgaagcctcaaacatgctgtatgacagcgttgggt 723
OY 793 ctgcttccacacacacacacacacacacacacacacacacacacacacacacacacacacac 852
DB 724 ctgcttccacacacacacacacacacacacacacacacacacacacacacacacacacacac 783
OY 853 aaagactatgcccagcagacacacacacacacacacacacacacacacacacacacacacac 912
DB 784 aaagactatgcccagcagacacacacacacacacacacacacacacacacacacacacacac 843
OY 913 ggcataagcgcgtacgaataatcttccgagcagtcaccccgctcacaagaggtatggagt 972
DB 844 ggcataagcgcgtacgaataatcttccgagcagtcaccccgctcacaagaggtatggagt 903
OY 973 gttcgggggaataatgagcttggtgagcagcagcagcagcagcagcagcagcagcagcagc 1032
DB 904 gttcgggggaataatgagcttggtgagcagcagcagcagcagcagcagcagcagcagcagc 963
OY 1033 ggcgagatcgatctgcgaagaagacacacacacacacacacacacacacacacacacacac 1092
DB 964 ggcgagatcgatctgcgaagaagacacacacacacacacacacacacacacacacacacacac 1023
OY 1093 taagcgaataacccgctcctaccatcctccggaataatcctgctcaacttggagcagcgt 1152
DB 1024 taagcgaataacccgctcctaccatcctccggaataatcctgctcaacttggagcagcgt 1083
OY 1153 taagcgaataacccgctcctaccatcctccggaataatcctgctcaacttggagcagcgt 1212
DB 1084 taagcgaataacccgctcctaccatcctccggaataatcctgctcaacttggagcagcgt 1143
OY 1213 ctggcgaacacacacacacacacacacacacacacacacacacacacacacacacacacac 1272
DB 1144 ctggcgaacacacacacacacacacacacacacacacacacacacacacacacacacacac 1203
OY 1273 ttgtgaaaagcgttaataatgatacagatagcaga 1302
DB 1204 ttgtgaaaagcgttaataatgatacagcaga 1233

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RESULT 13  
AADI7049  
ID AADI7049 standard; DNA; 2256 BP.

```

XX AC AADI7049;
XX XX 29-NOV-2001 (first entry)
DB DT N. meningitidis strain 2996 ORF46.1-961c fusion DNA.
DE DE Heterologous expression; Neisseria protein; open reading frame; ORF;
XX KW ORF46.1-961c fusion protein; ds.
XX OS Neisseria meningitidis 2996.
FH Key Location/Qualifiers
FT CDS 1..2256
FT /tag a
FT /product "N. meningitidis strain 2996 ORF46.1-961c
FT fusion protein"
XX MO200164920-A2.
XX PD 07-SEP-2001.
XX PF 28-FEB-2001; 2001WO-IB00420.
XX PR 28-FEB-2000; 2000GB-0004695.
XX PR 13-NOV-2000; 2000GB-0027675.
XX PA (CHIR-) CHIRON SPA.
XX PI Arico MB, Comanducci M, Galeotti C, Masignani V, Giuliani MM;
PI Pizza M;
XX DR WPI: 2001-557776/62.
XX DR P-PSDB: AME10034.
XX PT Heterologous expression for the expression of two or more Neisseria
XX PT proteins in fused state
XX PS Example 23; Page 26; 52pp; English.
XX CC The present invention relates to a method for simultaneous heterologous
XX CC expression of two or more Neisseria proteins which are in a fused
XX CC state. The method is useful for simultaneous heterologous expression of
XX CC two or more Neisseria proteins. A protein that may be unstable or
XX CC poorly expressed on its own is assisted by adding a suitable hybrid
XX CC partner and commercial manufacture is simplified-only one expression
XX CC purification need to be employed in order to produce two separately-
XX CC useful proteins. The present sequence is a DNA encoding
XX CC Neisseria meningitidis (serogroup B, strain 2996) ORF46.1 (open
XX CC reading frame) -961c fusion protein.
XX SQ Sequence 2256 BP; 698 A; 608 C; 545 G; 405 T; 0 other;

Query Match 70.48; Score 1175.6; DB 22; Length 2256;
Best Local Similarity 97.28; Pred. No. 0;
Matches 1196; Conservative 0; Mismatches 34; Indels 0; Gaps 0;
OY 73 tcagatttgcgaacagatcttcttaccgagcaggttcacacgctcagcagcagcagcagcagc 132
DB 4 tcagatttgcgaacagatcttcttaccgagcaggttcacacgctcagcagcagcagcagcagc 63
OY 133 gacggggaataacacacacacacacacacacacacacacacacacacacacacacacacacac 192
DB 64 gacggggaataacacacacacacacacacacacacacacacacacacacacacacacacacac 123
OY 193 gatttgggaataacacacacacacacacacacacacacacacacacacacacacacacacacac 252
DB 124 gatttgggaataacacacacacacacacacacacacacacacacacacacacacacacacacac 183
OY 253 aaaggaataatcggtacatgttcgcttccgatacagcagcagcagcagcagcagcagcagc 312
DB 184 aaaggaataatcggtacatgttcgcttccgatacagcagcagcagcagcagcagcagcagc 243

```

OY 313 ttgcacaacatgctcacaatccgaattctgtgaagccggtatgctccgtttgacgattc 372  
 DB 244 ttgcacaacatgctcacaatccgaattctgtgaagccggtatgctccgtttgacgattc 303  
 OY 373 agccttaccgcatccatcttggaagcgatccgaacaccatcccgccgacgcatatagcg 432  
 DB 304 agccttaccgcatccatcttggaagcgatccgaacaccatcccgccgacgcatatagcg 363  
 OY 433 ccacagggcgcggtatctccgctcccaaaagcgcgaggtatatacagctacgacata 492  
 DB 364 ccacagggcgcggtatctccgctcccaaaagcgcgaggtatatacagctacgacata 423  
 OY 493 aaagcgcttgcccaaaataatccgctcaactcgaacccgacacccgacacgacgaacag 552  
 DB 424 aaagcgcttgcccaaaataatccgctcaactcgaacccgacacccgacacgacgaacag 483  
 OY 553 ctgtgcagccgtttccacaatccggtatgctgaacgaaggtatgagcgagattc 612  
 DB 484 ctgtgcagccgtttccacaatccggtatgctgaacgaaggtatgagcgagattc 543  
 OY 613 aaacgcccaccccgatccaccccgagctggaacagatccggtacgacgacgacgacgac 672  
 DB 544 aaacgcccaccccgatccaccccgagctggaacagatccggtacgacgacgacgacgac 603  
 OY 673 aaacgcccaccccgatccaccccgagctggaacagatccggtacgacgacgacgacgac 732  
 DB 604 aaacgcccaccccgatccaccccgagctggaacagatccggtacgacgacgacgacgac 663  
 OY 733 ggcgcatgctgctgcaaggtataagcgaaggtcacaacatgctgttatgacgagcttggt 792  
 DB 664 ggcgcatgctgctgcaaggtataagcgaaggtcacaacatgctgttatgacgagcttggt 723  
 OY 793 ctgcttccacccgaaacaaagatgctgctgacacgaatttgacagatgctgacgaactc 852  
 DB 724 ctgcttccacccgaaacaaagatgctgctgacacgaatttgacagatgctgacgaactc 783  
 OY 853 aaagactatgctgcaagcagcatccgcatggtggcagctcacaaccccaattgcccgaac 912  
 DB 784 aaagactatgctgcaagcagcatccgcatggtggcagctcacaaccccaattgcccgaac 843  
 OY 913 ggcataaagccgtcagcaaatatctttagcgatcaccgctcacaagggatgtgagct 972  
 DB 844 ggcataaagccgtcagcaaatatctttagcgatcaccgctcacaagggatgtgagct 903  
 OY 973 gttcggggaataatcagctgtgagcgatcagcgacatctgttcaacggtcgcgaatg 1032  
 DB 904 gttcggggaataatcagctgtgagcgatcagcgacatctgttcaacggtcgcgaatg 963  
 OY 1033 ggcgagatcgcattgcccgaaggaatccgctcagcgacacgaatttgcgagtcgga 1092  
 DB 964 ggcgagatcgcattgcccgaaggaatccgctcagcgacacgaatttgcgagtcgga 1023  
 OY 1093 taagcacaataccgctcccttaccatctccgaaataatccgctcacaacttgagagcgct 1152  
 DB 1024 taagcacaataccgctcccttaccatctccgaaataatccgctcacaacttgagagcgct 1083  
 OY 1153 taagcacaataatcactcttcaacggtgcccgcgcacaacggaagaaatgtgaa 1212  
 DB 1084 taagcacaataatcactcttcaacggtgcccgcgcacaacggaagaaatgtgaa 1143  
 OY 1213 ctgggaacaaacgacccgcaagcaaaatgctcgtttgaaggttaagggcttcgaaat 1272  
 DB 1144 ctgggaacaaacgacccgcaagcaaaatgctcgtttgaaggttaagggcttcgaaat 1203  
 OY 1273 ttggaacaaacgcaaaatcagatcagaga 1302  
 DB 1204 ttggaacaaacgcaaaatcagatcagaga 1233

RESULT 14  
 AAS43895  
 ID AAS43895 standard; DNA; 2421 BP.

XX AAS43895;  
 AC 18-DEC-2001 (first entry)  
 XX  
 DT  
 XX  
 DE Neisseria meningitidis fusion protein ORF46.1-961 DNM.  
 XX  
 DE Neisseria gonorrhoeae; leader peptide; fusion protein; ORF46.1; ds;  
 XX  
 KW Neisserial protein.  
 XX  
 OS Neisseria meningitidis.  
 OS Synthetic.  
 XX  
 PN WO200164922-A2.  
 XX  
 PD 07-SEP-2001.  
 XX  
 PF 28-FEB-2001; 2001WO-1B00452.  
 XX  
 PR 28-FEB-2000; 2000GB-0004695.  
 PR 13-NOV-2000; 2000GB-0027675.  
 XX  
 PA (CHIR-) CHIRON SPA.  
 XX  
 PI Arico MB, Commanducci M, Galeotti C, Masignani V, Giuliani MM;  
 PI Pizza M;  
 PI  
 DR WPI: 2001-582163/65.  
 DR P-PSDB: AAU27598.  
 XX  
 PT Producing heterologous proteins from Neisseria meningitidis and N.  
 PT gonorrhoeae.  
 PS Example 23; Page 64-65; 119pp; English.  
 XX  
 CC The invention relates to methods for the heterologous expression of  
 CC Neisserial proteins from Neisseria meningitidis and Neisseria  
 CC gonorrhoeae. At least one domain in the protein is deleted, e.g. the  
 CC leader peptide, and may be replaced by a domain from a different protein  
 CC to make a fusion protein, in order to enhance heterologous expression of  
 CC Neisserial proteins. Also, a region of a protein, such as a poly-glycine  
 CC stretch, can be mutated to enhance expression. The proteins used in the  
 CC processes include ORF46.1, 287, 741, 919, 953, 961 and 983. Sequences  
 CC AAS43868-AAS43905 represent DNA molecules encoding Neisserial proteins  
 CC and peptide regions of proteins of the invention.  
 XX  
 SQ Sequence 2421 BP; 730 A; 659 C; 591 G; 441 T; 0 other.

Query Match 70.4%; Score 1175.6; DB 22; Length 2421;  
 Best Local Similarity 97.2%; Pred. No. 0;  
 Matches 1196; Conservative 0; Mismatches 34; Indels 0; Gaps 0;

OY 73 tcaagattggaacagatcttattatccgagcaggtcttcgacgctagatctgaaccc 132  
 DB 4 tcaagattggaacagatcttattatccgagcaggtcttcgacgctagatctgaaccc 63  
 OY 133 gacgggaataatccacattcttcgacgagcaggggaacttgcgagcgacgagctatc 192  
 DB 64 gacgggaataatccacattcttcgacgagcaggggaacttgcgagcgacgagctatc 123  
 OY 193 gatttgggaacatacaaacgcatcagttggaacactgttcaatccagcgagcgagcatt 252  
 DB 124 gatttgggaacatacaaacgcatcagttggaacactgttcaatccagcgagcgagcatt 183  
 OY 253 aaaggaataatcgttcaatgctcgttttcgacatcagcgacgagacgtatccccc 312  
 DB 184 aaaggaataatcgttcaatgctcgttttcgacatcagcgacgagacgtatccccc 243  
 OY 313 ttgcacaacatgctcacaatccgaattctgtatgaagcggtatgcttgcgagttc 372  
 DB 244 ttgcacaacatgctcacaatccgaattctgtatgaagcggtatgcttgcgagttc 303



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OY 373 agccttacccgacatcattgagcgagatacgaacccaaccgagcgagctatagcgg 432
DB 304 agccttacccgacatcattgagcgagatacgaacccaaccgagcgagctatagcgg 363
OY 433 ccacagggcgagcgatcccgctcccaagcgcgagggatatacagctcagacata 492
DB 364 ccacagggcgagcgatcccgctcccaagcgcgagggatatacagctcagacata 423
OY 493 aaagcgcttcgccaataatacgcctcaacccgacgacacgacgacgacgacgacg 552
DB 424 aaagcgcttcgccaataatacgcctcaacccgacgacacgacgacgacgacgacg 483
OY 553 ctgclgcacgcttcgccaataatacgcctcaacccgacgacgacgacgacgacgacg 612
DB 484 ctgclgcacgcttcgccaataatacgcctcaacccgacgacgacgacgacgacgacg 543
OY 613 aaagcgacgacgacgacgacgacgacgacgacgacgacgacgacgacgacgacg 672
DB 544 aaagcgacgacgacgacgacgacgacgacgacgacgacgacgacgacgacgacg 603
OY 673 aaagcgacgacgacgacgacgacgacgacgacgacgacgacgacgacgacgacg 732
DB 604 aaagcgacgacgacgacgacgacgacgacgacgacgacgacgacgacgacgacg 663
OY 733 agcgatgcgctgagcgatataagcgagcgacgacgacgacgacgacgacgacgacg 792
DB 664 agcgatgcgctgagcgatataagcgagcgacgacgacgacgacgacgacgacgacg 723
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OY 913 ggcataagcgacgacgacgacgacgacgacgacgacgacgacgacgacgacgacg 972
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OY 1093 taagcacaataccgctccctacacatcccgaaataatccgcttcgaacttgagcgacg 1152
DB 1024 taagcacaataccgctccctacacatcccgaaataatccgcttcgaacttgagcgacg 1083
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DB 1084 taagcacaataccgctccctacacatcccgaaataatccgcttcgaacttgagcgacg 1143
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DB 1144 ctgagcaaaacgacgacgacgacgacgacgacgacgacgacgacgacgacgacgacg 1203
OY 1273 ttgtaaaagacgacgacgacgacgacgacgacgacgacgacgacgacgacgacgacg 1302
DB 1204 ttgtaaaagacgacgacgacgacgacgacgacgacgacgacgacgacgacgacgacg 1233

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RESULT 15
AADI7048
ID AADI7048 standard; DNA; 2421 BP.
AC AADI7048;
XX
XX 29-NOV-2001 (first entry)
XX

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DE N. meningitidis strain 2996 ORF46.1-961 fusion DNA.
XX Heterologous expression; Neisserial protein; open reading frame; ORF;
KW ORF46.1-961 fusion protein; ds.
XX Neisseria meningitidis 2996.
XX
FH Key location/Qualifiers
FT CDS 1..2421
FT /tag= a
FT /product= "N. meningitidis strain 2996 ORF46.1-961
FT fusion protein"
XX
XX WO200164920-A2.
XX
XX 07-SEP-2001.
XX
XX 28-FEB-2001; 2001WO-IB00420.
XX
XX 28-FEB-2001; 2000GB-004695.
XX
XX 13-NOV-2000; 2000GB-0027675.
XX
XX (CHUR-) CHIRON SPA.
XX
XX Arico MB, Comanducci M, Galeotti C, Malignani V, Giuliani MM,
XX Piazza M;
XX
XX WPI. 2001-557776/62.
XX
XX F-PSDB; AAEI0033.
XX
XX
XX Heterologous expression for the expression of two or more Neisserial
XX proteins in fused state
XX
XX Example 23; Page 25; 52pp; English.
XX
XX
XX The present invention relates to a method for simultaneous heterologous
XX expression of two or more Neisserial proteins which are in a fused
XX state. The method is useful for simultaneous heterologous expression of
XX two or more Neisserial proteins. A protein that may be unstable or
XX poorly expressed on its own is assisted by adding a suitable hybrid
XX partner and commercial manufacture is simplified-only one expression
XX purification need to be employed in order to produce two separately-
XX useful proteins. The present sequence is a DNA encoding
XX Neisseria meningitidis (serogroup B, strain 2996) ORF46.1 (open
XX reading frame)-961 fusion protein.
XX
XX
XX Sequence 2421 BP; 730 A; 659 C; 591 G; 441 T; 0 other:
XX

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Query Match 70.4%; Score 1175.6; DB 22; Length 2421;

Best Local Similarity 97.2%; Pred. No. 0;

Matches 1196; Conservative 0; Mismatches 34; Indels 0; Gaps 0;

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OY 73 taagatttgcaaacgacgttccttatttcgagcgaggttcgacgctcagcatltagaac 132
DB 4 taagatttgcaaacgacgttccttatttcgagcgaggttcgacgctcagcatltagaac 63
OY 133 gacgggaataccactatctcgagcagcagggggaacttcgacgacgacgacgacgacg 192
DB 64 gacgggaataccactatctcgagcagcagggggaacttcgacgacgacgacgacgacg 123
OY 193 gatttggaataccataaagccatcaatttggaacactgtltaacagcagcgacgacgacg 252
DB 124 gatttggaataccataaagccatcaatttggaacactgtltaacagcagcgacgacgacg 183
OY 253 aaaggaataatcggctacatctgcttcgcttcgacgacgacgacgacgacgacgacgacg 312
DB 184 aaaggaataatcggctacatctgcttcgcttcgacgacgacgacgacgacgacgacgacg 243
OY 313 ttgcacaacatcgctacatctcgatctcgtatgaagcgcgtagtccgtltaagcgtatc 372
DB 244 ttgcacaacatcgctacatctcgatctcgtatgaagcgcgtagtccgtltaagcgtatc 303

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QY 373 agccttaacgcgtatcattggagagatagcaaacacatcccgccgagcgatgacgg 432
DB 304 agccttaacgcgtatcattggagagatagcaaacacatcccgccgagcgatgacgg 363
QY 433 ccacagggcgcggtatcccgctcccaaaagcgcgagggatataatagtaagtaacata 492
DB 364 ccacagggcgcggtatcccgctcccaaaagcgcgagggatataatagtaagtaacata 423
QY 493 aaagcggttgcacaaatatacgcgtcccaaacctgacacgacacgacgacgacgacg 552
DB 424 aaagcggttgcacaaatatacgcgtcccaaacctgacacgacacgacgacgacgacg 483
QY 553 ctgtgcagcgtttcccaaatatccgtagtagtagtagtagtagtagtagtagtagtag 612
DB 484 ctgtgcagcgtttcccaaatatccgtagtagtagtagtagtagtagtagtagtagtag 543
QY 613 aaacgagccacccgatacagcccgagctgacacgacgacgacgacgacgacgacg 672
DB 544 aaacgagccacccgatacagcccgagctgacacgacgacgacgacgacgacgacg 603
QY 673 aaacgagccacccgatacagcccgagctgacacgacgacgacgacgacgacgacg 732
DB 604 aaacgagccacccgatacagcccgagctgacacgacgacgacgacgacgacgacg 663
QY 733 ggcgagtcggtcaggtatagcgaaagcgcaaacattgtgtatgacgagctgggt 792
DB 664 ggcgagtcggtcaggtatagcgaaagcgcaaacattgtgtatgacgagctgggt 723
QY 793 ctgcttccacccgaaacagatggcgacatcaacgattggcgagatgagcgacatc 852
DB 724 ctgcttccacccgaaacagatggcgacatcaacgattggcgagatgagcgacatc 783
QY 853 aaagactatccgacgacgacgacgacgacgacgacgacgacgacgacgacgacg 912
DB 784 aaagactatccgacgacgacgacgacgacgacgacgacgacgacgacgacgacg 843
QY 913 ggcataaagcggtcagcaatatactttagcgacgacgacgacgacgacgacgacg 972
DB 844 ggcataaagcggtcagcaatatactttagcgacgacgacgacgacgacgacgacg 903
QY 973 gtcgggggaaatacgcgttggcgagacgacgacgacgacgacgacgacgacgacg 1032
DB 904 gtcgggggaaatacgcgttggcgagacgacgacgacgacgacgacgacgacgacg 963
QY 1033 ggcgagatcgcgtatgacgaaaggaatccgcgctcagcgacacatttgcgagtcg 1092
DB 964 ggcgagatcgcgtatgacgaaaggaatccgcgctcagcgacacatttgcgagtcg 1023
QY 1093 taagccaaatacgcgttcccttaccattccgaaataatccgtaacttggagcgat 1152
DB 1024 taagccaaatacgcgttcccttaccattccgaaataatccgtaacttggagcgat 1083
QY 1153 taagccaaatacgcgttcccttaccattccgaaataatccgtaacttggagcgat 1212
DB 1084 taagccaaatacgcgttcccttaccattccgaaataatccgtaacttggagcgat 1143
QY 1213 ctggtcaacaaagccacccgagaaagcgaagtcggtttagcgttaaggtttccgat 1272
DB 1144 ctggtcaacaaagccacccgagaaagcgaagtcggtttagcgttaaggtttccgat 1203
QY 1273 ttggaataagagctaaatacagatagcaga 1302
DB 1204 ttggaataagagctaaatacagatagcaga 1233

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## RESULT 16

AAAS43903  
ID AAAS43903 standard; DNA; 2304 BP.

AAAS43903;

18-DEC-2001 (first entry)

```

DE Neisseria meningitidis fusion protein 961cL-ORF46.1 DNA.
XX Neisseria gonorrhoeae; leader peptide; fusion protein; ORF46.1; ds;
KM Neisserial protein.
XX
OS Neisseria meningitidis.
OS Synthetic.
PN WO200164922-A2.
XX
PD 07-SEP-2001.
XX
PF 28-FEB-2001; 2001WO-IB00452.
XX
PR 28-FEB-2000; 2000GB-0004695.
PR 13-NOV-2000; 2000GB-0027675.
XX
PA (CHIR-) CHIRON SPA.
XX
PI Allico MB, Comanducci M, Galeotti C, Masignani V, Giuliani MM;
PI Pizsa M;
DR WPI; 2001-582163/65.
DR P-PSDB; AAU27606.
XX
PT Producing heterologous proteins from Neisseria meningitidis and N.
PT gonorrhoeae -
XX
PS Example 23; Page 73-74; 119pp; English.
XX
CC The invention relates to methods for the heterologous expression of
CC Neisserial proteins from Neisseria meningitidis and Neisseria
CC gonorrhoeae. At least one domain in the protein is deleted, e.g. the
CC leader peptide, and may be replaced by a domain from a different protein
CC to make a fusion protein, in order to enhance heterologous expression of
CC Neisserial proteins. Also, a region of a protein, such as a poly-glycine
CC stretch, can be mutated to enhance expression. The proteins used in the
CC processes include ORF46.1, 287, 741, 919, 953, 961 and 963. Sequences
CC AAAS43868-AAAS43905 represent DNA molecules encoding Neisserial proteins
CC and peptide regions of proteins of the invention.
XX
SQ Sequence 2304 BP; 710 A; 619 C; 555 G; 420 T; 0 other;

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Query Match 70.3%; Score 1174.4; DB 22; Length 2304;  
Best Local Similarity 97.1%; Pred. No. 0;  
Matches 1196; Conservative 0; Mismatches 36; Indels 0; Gaps 0;

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QY 73 tcagattggcaaacgattctttatccggcaggttctcgacgctcagcattccgaacc 132
DB 1069 tcagattggcaaacgattctttatccggcaggttctcgacgctcagcattccgaacc 1128
QY 133 gacgggaataacacactatttggcagcagggggaacttgcggagcgacgctatc 192
DB 1129 gacgggaataacacactatttggcagcagggggaacttgcggagcgacgctatc 1188
QY 193 ggaattggaaacatacaagcactcagttggcgaactggttcatccagcagcgccat 252
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DB 1369 agccttaacgcgtatcattggagagatagcaaacacatcccgccgagcgatgacgg 1428
QY 433 ccacagggcgcggtatcccgctcccaaaagcgcgagggatataatagtaagtaacata 492

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|||||
Db 1429 ccacagggcggtacgtaccgctcccaaaagcgcgaggtatatactacagctacagata 1488
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Db 1489 aaaggcgttgcgaataatccgctcaacctgaccgacaacccgacgacgacagag 1548
Oy 553 ctgtcgacgcttcccaataccggtatgtctgacgacgaggtatgagcgagatc 612
Db 1549 ctgtcgacgcttcccaataccggtatgtctgacgacgaggtatgagcgagatc 1608
Oy 613 aaacgacgacccgacataccgacccgagctggaacagatccggaacgacgacgacgac 672
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Db 1669 aaacgacgacccgacataccgacccgagctggaacagatccggaacgacgacgacgac 1728
Oy 733 ggcgatgacgctgacggtatgacgaggtacgaacatctgtctgtatgacgagcttgg 792
Db 1729 ggcgatgacgctgacggtatgacgaggtacgaacatctgtctgtatgacgagcttgg 1788
Oy 793 ctgtcttccacggaataacagatgacgacgacatccgacatggtgacgacgacgac 852
Db 1789 ctgtcttccacggaataacagatgacgacgacatccgacatggtgacgacgacgac 1848
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Db 1849 aaagactatgacgacgacgacgacatccgacatggtgacgacgacgacgacgac 1908
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Db 1969 gtcgaggaataacgacgacgacgacgacatccgacgacgacgacgacgacgacgacgac 2028
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Db 2029 ggcgagatcgacatgacgacgacgacgacgacgacgacgacgacgacgacgacgacgac 2088
Oy 1093 tacgcaaatatccgcttccatccatccgacgacgacgacgacgacgacgacgacgac 1152
Db 2089 tacgcaaatatccgcttccatccatccgacgacgacgacgacgacgacgacgacgac 1212
Oy 1153 tacgcaaatatccgcttccatccatccgacgacgacgacgacgacgacgacgacgac 1248
Db 2149 tacgcaaatatccgcttccatccatccgacgacgacgacgacgacgacgacgacgac 1272
Oy 1213 ctgcaacaatacgcacacgacgacgacgacgacgacgacgacgacgacgacgacgac 2208
Db 2209 ctgcaacaatacgcacacgacgacgacgacgacgacgacgacgacgacgacgacgac 1272
Oy 1273 ttgtaaaagacgtaatactacgacgacgacgacgacgacgacgacgacgacgacgac 2268
Db 2269 ttgtaaaagacgtaatactacgacgacgacgacgacgacgacgacgacgacgacgac 2300

```

## RESULT 17

AAD17056  
ID AAD17056 standard; DNA: 2304 BP.

AC AAD17056;

DT 29-NOV-2001 (first entry)

DE N. meningitidis strain 2996 961cL-ORF46.1 fusion DNA.

KW Heterologous expression; Neisserial protein; open reading frame; ORF:  
961cL-ORF46.1 fusion protein; ds.

OS Neisseria meningitidis 2996.

Key Location/Qualifiers

FT CDS 1..2298

FT /tag= a

FT /product= "N. meningitidis strain 2996

961cL-ORF46.1 fusion protein"

PN WO200164920-A2.

XX 07-SEP-2001.

PD 28-FEB-2001; 2001MO-IB00420.

PF 28-FEB-2000; 2000GB-0004695.

PR 13-NOV-2000; 2000GB-0027675.

XX (CHIR-) CHIRON SPA.

PA Arico M; Comanducci M; Galeotti C; Masignani V; Giuliani MM;

PI Plizza M;

DR WPI: 2001-557776/62.

XX P-PSDB; AAEL0041.

PT Heterologous expression for the expression of two or more Neisserial

proteins in fused state

PS Example 23; Page 32; 52pp; English.

CC The present invention relates to a method for simultaneous heterologous  
CC expression of two or more Neisserial proteins which are in a fused  
CC state. The method is useful for simultaneous heterologous expression of  
CC two or more Neisserial proteins. A protein that may be unstable or  
CC poorly expressed on its own is assisted by adding a suitable hybrid  
CC partner and commercial manufacture is simplified-only one expression  
CC purification need to be employed in order to produce two separately-  
CC useful proteins. The present sequence is a DNA encoding  
CC Neisseria meningitidis (serogroup B, strain 2996) 961cL-ORF46.1  
CC (open reading frame) fusion protein.

Sequence 2304 BP: 710 A; 619 C; 555 G; 420 T; 0 other.

Query Match 70.3%; Score 1174.4; DB 22; Length 2304;

Best Local Similarity 97.1%; Pred. No. 0;

Matches 1196; Conservative 0; Mismatches 36; Indels 0; Gaps 0;

```

Oy 73 tcgatttggcaaacgattctttatccgacgagttctcgacgctcgaacattcgaaacc 132
Db 1069 tcdgatttggcaaacgattctttatccgacgagttctcgacgctcgaacattcgaaacc 1128
Oy 133 gacgggaataacacacatttgcgacgacgacgacgacgacgacgacgacgacgacgac 192
Db 1129 gacgggaataacacacatttgcgacgacgacgacgacgacgacgacgacgacgacgac 1188
Oy 193 ggaattgggaatacgaacgacatcagttggcaacgtgttcacacgacgacgacgacgac 252
Db 1189 ggaattgggaatacgaacgacatcagttggcaacgtgttcacacgacgacgacgacgac 252
Oy 1189 ggaattgggaatacgaacgacatcagttggcaacgtgttcacacgacgacgacgacgac 1248
Db 253 aaagggaatacgcgtacattgttcgcttccgacgacgacgacgacgacgacgacgacgac 312
Oy 1249 aaagggaatacgcgtacattgttcgcttccgacgacgacgacgacgacgacgacgacgac 1308
Db 313 ttgcaacaacatgctccacatccgattctgatagaacgagtagtcggttaacgacgacgac 372
Oy 1309 ttgcaacaacatgctccacatccgattctgatagaacgagtagtcggttaacgacgacgac 372
Db 373 agccttaccgacatccatggtggacgacgacgacgacgacgacgacgacgacgacgacgac 432
Oy 1369 agccttaccgacatccatggtggacgacgacgacgacgacgacgacgacgacgacgacgac 432
Db 433 ccacagggcggtacgtaccgctcccaaaagcgcgaggtatatactacagctacagata 492

```

```

Db 1429 ccaagggcgcggtatcccgctcccaaaagcgaggaatatacagtaacacata 1488
      |||||||
OY 493 aaagcgcttgcacaaatccgctcccaacccgagacacacacacacacacacg 552
      |||||||
Db 1489 aaagcgcttgcacaaatccgctcccaacccgagacacacacacacacacacg 1548
      |||||||
OY 553 ctgtgcacgcttcccaatacaccgtagtagtgcacgacgaggtgagcgatc 612
      |||||||
Db 1549 ctgtgcacgcttcccaatacaccgtagtagtgcacgacgaggtgagcgatc 1608
      |||||||
OY 613 aaagcgccacccgatacagcccgagctgacacacacacacacacacacacacac 672
      |||||||
Db 1609 aaagcgccacccgatacagcccgagctgacacacacacacacacacacacacac 1668
      |||||||
OY 673 aaagcgactgcagatatacgtcaaaaacacacacacacacacacacacacacac 732
      |||||||
Db 1669 aaagcgactgcagatatacgtcaaaaacacacacacacacacacacacacacac 1728
      |||||||
OY 733 ggcgactgcggtgcaggtatagcgaaagcgacacacacacacacacacacacacac 792
      |||||||
Db 1729 ggcgactgcggtgcaggtatagcgaaagcgacacacacacacacacacacacacac 1788
      |||||||
OY 793 ctgtctccacccgaaacacacacacacacacacacacacacacacacacacacac 852
      |||||||
Db 1789 ctgtctccacccgaaacacacacacacacacacacacacacacacacacacacac 1848
      |||||||
OY 853 aaagactatgcgacgacacacacacacacacacacacacacacacacacacacac 912
      |||||||
Db 1849 aaagactatgcgacgacacacacacacacacacacacacacacacacacacacac 1908
      |||||||
OY 913 ggcataaagcgctcagacacacacacacacacacacacacacacacacacacacac 972
      |||||||
Db 1909 ggcataaagcgctcagacacacacacacacacacacacacacacacacacacacac 1968
      |||||||
OY 973 gtcggggaaatacagcgttgagcgacacacacacacacacacacacacacacacac 1032
      |||||||
Db 1969 gtcggggaaatacagcgttgagcgacacacacacacacacacacacacacacacac 2028
      |||||||
OY 1033 ggcgagatcgatgcgacgaaaggaatccgcgcgtcagacacacacacacacacac 1092
      |||||||
Db 2029 ggcgagatcgatgcgacgaaaggaatccgcgcgtcagacacacacacacacacac 2088
      |||||||
OY 1093 taagcacaataccgctcccttaccatcccgaaatatacgttcaacttgcagacgct 1152
      |||||||
Db 2089 taagcacaataccgctcccttaccatcccgaaatatacgttcaacttgcagacgct 2148
      |||||||
OY 1153 taagcacaataccgctcccttaccatcccgaaatatacgttcaacttgcagacgct 1212
      |||||||
Db 2149 taagcacaataccgctcccttaccatcccgaaatatacgttcaacttgcagacgct 2208
      |||||||
OY 1213 ctgtgcacacacacacacacacacacacacacacacacacacacacacacacacac 1272
      |||||||
Db 2209 ctgtgcacacacacacacacacacacacacacacacacacacacacacacacacac 2268
      |||||||
OY 1273 ttgtaaaagcgttaaatatagatagcagaat 1304
      |||||||
Db 2269 ttgtaaaagcgttaaatatagatagcagaat 2300
      |||||||

```

## RESULT 18

AA543900 standard: DNA; 2256 BP.

AA543900;

18-DEC-2001 (first entry)

Neisseria meningitidis fusion protein 961c-ORF46.1 DNA.

Neisseria gonorrhoeae; leader peptide; fusion protein; ORF46.1; ds;

Neisseria protein.

```

OS Neisseria meningitidis.
OS Synthetic.
PN WO200164922-A2.
XX 07-SEP-2001.
XX 28-FEB-2001; 2001WO-IB00452.
XX 28-FEB-2000; 2000GB-0004695.
XX 13-NOV-2000; 2000GB-0027675.
XX (CHIR-) CHIRON SPA.
XX ATico MB, Comanducci M, Galeotti C, Massignani V, Guillani MM,
XX Pizsa M;
XX WPI; 2001-582163/65.
XX P-PSDB; AAU27603.
XX
XX Producing heterologous proteins from Neisseria meningitidis and N.
XX gonorrhoeae -
XX
XX Example 23; Page 70; 119pp; English.
XX
XX The invention relates to methods for the heterologous expression of
XX Neisserial proteins from Neisseria meningitidis and Neisseria
XX gonorrhoeae. At least one domain in the protein is deleted, e.g. the
XX leader peptide, and may be replaced by a domain from a different protein
XX to make a fusion protein. In order to enhance heterologous expression of
XX Neisserial proteins. Also, a region of a protein, such as a poly-glycine
XX stretch, can be mutated to enhance expression. The proteins used in the
XX processes include ORF46.1, 287, 741, 919, 953, 961 and 983. Sequences
XX AA543868-AA543905 represent DNA molecules encoding Neisserial proteins
XX and peptide regions of proteins of the invention.
XX
XX Sequence 2256 BP; 698 A; 608 C; 545 G; 405 T; 0 other;
XX

```

Query Match 70.3%; Score 1174.2; DB 22; Length 2256;  
 Best Local Similarity 97.3%; Pred. No. 0;  
 Matches 1194; Conservative 0; Mismatches 33; Indels 0; Gaps 0;

```

OY 73 taagattggcaacagatcttcttaccgaggttctcagccgtcagcatttcgaacc 132
      |||||||
Db 1003 tcaagattggcaacagatcttcttaccgaggttctcagccgtcagcatttcgaacc 1062
      |||||||
OY 133 gacgggaatataccacatttcgacgacgagggggaacttgcgagcgacggtcattc 192
      |||||||
Db 1063 gacgggaatataccacatttcgacgacgagggggaacttgcgagcgacggtcattc 1122
      |||||||
OY 193 ggaattgggaatacacaagaacacatagttggaacactgttcatccacgacggccatt 252
      |||||||
Db 1123 ggaattgggaatacacaagaacacatagttggaacactgttcatccacgacggccatt 1182
      |||||||
OY 253 aaaggaataatcgctacatgttcgcttcccgatccgacgacgaaagtcatccccc 312
      |||||||
Db 1183 aaaggaataatcgctacatgttcgcttcccgatccgacgacgaaagtcatccccc 1242
      |||||||
OY 313 ctgcacacacatgcctacatccgattctgtagtagcggtagtccggttgcaggtatc 372
      |||||||
Db 1243 ctgcacacacatgcctacatccgattctgtagtagcggtagtccggttgcaggtatc 1302
      |||||||
OY 373 agccttaccgcatcatctggaacgatacgaacacacacacacacacacacacacac 432
      |||||||
Db 1303 agccttaccgcatcatctggaacgatacgaacacacacacacacacacacacacac 1362
      |||||||
OY 433 ccaagggcgcggtctatcccgctcccaaaagcgagggatatacagtaacacata 492
      |||||||
Db 1363 ccaagggcgcggtctatcccgctcccaaaagcgagggatatacagtaacacata 1422
      |||||||
OY 493 aaagcgcttgcacaaatatacgcctcaacacacacacacacacacacacacacac 552
      |||||||

```



Db 1423 aaagcgctgccaataatactcgcctcaacctgaccgcaaacccgagcagccggaacag 1482  
 QY 553 ctgtgcacgcttccacaataacgtagatgctgacgaaggaatgagcgagcagattc 612  
 Db 1483 ctgtgcacgcttccacaataacgtagatgctgacgaaggaatgagcgagcagattc 1542  
 QY 613 aaacgcgccacccgatacagcccgagctggaacagatcgggaatgagcgccgaacattc 672  
 Db 1543 aaacgcgccacccgatacagcccgagctggaacagatcgggaatgagcgccgaacattc 1602  
 QY 673 aacggaatgaggaatcctcctcaaacatcatcgcgcgagcgaggaatgctggcgca 732  
 Db 1603 aacggaatgaggaatcctcctcaaacatcatcgcgcgagcgaggaatgctggcgca 1662  
 QY 733 ggcgagtcgctgacgaggtatagaagcagcgtcaaacatgctgttctgacgagcttgg 792  
 Db 1663 ggcgagtcgctgacgaggtatagaagcagcgtcaaacatgctgttctgacgagcttgg 1722  
 QY 793 ctgcttccacgcaaaaataatgagcgagcgaacgattgacagatalgscgcaactc 852  
 Db 1723 ctgcttccacgcaaaaataatgagcgagcgaacgattgacagatalgscgcaactc 1782  
 QY 853 aaagactatgacgagcagcagcagcagcagcagcagcagcagcagcagcagcagcagc 912  
 Db 1783 aaagactatgacgagcagcagcagcagcagcagcagcagcagcagcagcagcagcagc 1842  
 QY 913 ggcatagaagcagcagcagcagcagcagcagcagcagcagcagcagcagcagcagcagc 972  
 Db 1843 ggcatagaagcagcagcagcagcagcagcagcagcagcagcagcagcagcagcagcagc 1902  
 QY 973 gtcgaggaagaaatacagcgtctggcgagcagcagcagcagcagcagcagcagcagcagc 1032  
 Db 1903 gtcgaggaagaaatacagcgtctggcgagcagcagcagcagcagcagcagcagcagcagc 1962  
 QY 1033 ggcgagatcgatctgcggaaggaaggaatcgccgagcagcagcagcagcagcagcagc 1092  
 Db 1963 ggcgagatcgatctgcggaaggaaggaatcgccgagcagcagcagcagcagcagcagc 2022  
 QY 1093 tagcgaatataccgctcccttaccatctccggaatataccgctccggaatataccgctcc 2082  
 Db 2023 tagcgaatataccgctcccttaccatctccggaatataccgctccggaatataccgctcc 2142  
 QY 1153 tagcgaatataccgctcccttaccatctccggaatataccgctccggaatataccgctcc 1212  
 Db 2083 tagcgaatataccgctcccttaccatctccggaatataccgctccggaatataccgctcc 2142  
 QY 1213 ctggaacaaacagcagcagcagcagcagcagcagcagcagcagcagcagcagcagcagc 1272  
 Db 2143 ctggaacaaacagcagcagcagcagcagcagcagcagcagcagcagcagcagcagcagc 2202  
 QY 1273 ttggaacaaacagcagcagcagcagcagcagcagcagcagcagcagcagcagcagcagc 1299  
 Db 2203 ttggaacaaacagcagcagcagcagcagcagcagcagcagcagcagcagcagcagcagc 2229  
 RESULT 20  
 AAS43897  
 ID AAS43897 standard: DNA: 2421 BP.  
 AC AAS43897:  
 XX 18-DEC-2001 (first entry)  
 DT  
 XX  
 DE Neisseria meningitidis fusion protein 961-ORF46.1 DNA.  
 XX  
 KW Neisseria gonorrhoeae: leader peptide; fusion protein; ORF46.1; ds:  
 XX  
 KW Neisseria meningitidis.  
 OS  
 XX Synthetic.  
 XX  
 PN W0200164922-A2.  
 XX

PD 07-SEP-2001.  
 XX 28-FEB-2001; 2001WO-IB00452.  
 PF 28-FEB-2000; 2000GB-0004695.  
 PR 13-NOV-2000; 2000GB-0027675.  
 PR  
 XX (CHIR-) CHIRON SPA.  
 PA  
 XX Arico MB, Comanducci M, Galeotti C, Maignani V, Guilianni MM;  
 PI Pizza M;  
 PI  
 DR WPI: 2001-582163/65.  
 DR P-PSDB; MAN27600.  
 DR  
 PT Producing heterologous proteins from Neisseria meningitidis and N.  
 PT gonorrhoeae  
 XX  
 XX Example 23; Page 66-67; 119pp; English.  
 CC The invention relates to methods for the heterologous expression of  
 CC Neisserial proteins from Neisseria meningitidis and Neisseria  
 CC gonorrhoeae. At least one domain in the protein is deleted, e.g. the  
 CC leader peptide, and may be replaced by a domain from a different protein  
 CC to make a fusion protein. In order to enhance heterologous expression of  
 CC Neisserial proteins. Also, a region of a protein, such as a poly-glycine  
 CC stretch, can be mutated to enhance expression. The proteins used in the  
 CC processes include ORF46.1, 287, 741, 919, 953, 961 and 983. Sequences  
 CC AAS43868-AAS43905 represent DNA molecules encoding Neisserial proteins  
 CC and peptide regions of proteins of the invention.  
 XX  
 XX Sequence 2421 BP: 730 A; 659 C; 591 G; 441 T; 0 other;  
 SQ  
 Query Match 70.3%; Score 1174.2; DB 22; Length 2421;  
 Best local similarity 97.3%; Pred. No. 0;  
 Matches 1194; Conservative 0; Mismatches 33; Indels 0; Gaps 0;  
 QY 73 tcagattggcaacagatcttcttaccgagcagcttcgacccgacgagcagcagcagcagc 132  
 Db 1168 tcagattggcaacagatcttcttaccgagcagcttcgacccgacgagcagcagcagcagc 1227  
 QY 133 gacgggaataccacatacttcgagcagcagcagcagcagcagcagcagcagcagcagcagc 192  
 Db 1228 gacgggaataccacatacttcgagcagcagcagcagcagcagcagcagcagcagcagcagc 1287  
 QY 193 ggaattgggaacatacaagccatcagcttggggaacactgttcacacagcagcagcagcagc 252  
 Db 1288 ggaattgggaacatacaagccatcagcttggggaacactgttcacacagcagcagcagcagc 1347  
 QY 253 aaaggaataatcgctacatcttcgagcagcagcagcagcagcagcagcagcagcagcagcagc 312  
 Db 1348 aaaggaataatcgctacatcttcgagcagcagcagcagcagcagcagcagcagcagcagcagc 1407  
 QY 313 ttgcgaacacatgctcctacatcttcgagcagcagcagcagcagcagcagcagcagcagcagcagc 372  
 Db 1408 ttgcgaacacatgctcctacatcttcgagcagcagcagcagcagcagcagcagcagcagcagcagc 1467  
 QY 373 agccttaacgcatcctacatcttcgagcagcagcagcagcagcagcagcagcagcagcagcagc 432  
 Db 1468 agccttaacgcatcctacatcttcgagcagcagcagcagcagcagcagcagcagcagcagcagc 1527  
 QY 433 ccacagcgcgcggtatcttcgagcagcagcagcagcagcagcagcagcagcagcagcagcagcagcagc 492  
 Db 1528 ccacagcgcgcggtatcttcgagcagcagcagcagcagcagcagcagcagcagcagcagcagcagcagc 1587  
 QY 493 aaagcgcttgcgcaaaaatacctcctcaacctgacgagcagcagcagcagcagcagcagcagcagc 552  
 Db 1588 aaagcgcttgcgcaaaaatacctcctcaacctgacgagcagcagcagcagcagcagcagcagcagc 1647  
 QY 553 ctgtgcacgcttccacaataacgtagatgctgacgaaggaatgagcgagcagcagcagcagcagc 612  
 Db 1648 ctgtgcacgcttccacaataacgtagatgctgacgaaggaatgagcgagcagcagcagcagcagc 1707



PD	07-SEP-2001.
PE	
XX	28-FEB-2001; 2001MO-IB00420.
XX	
PR	28-FEB-2000; 2000GB-0004695.
XX	13-NOV-2000; 2000GB-0027675.
XX	
PA	(CHIR-) CHIRON S2A.
XX	
PI	Arico MB, Commanducci M, Galeotti C, Masignani V, Giuliani MM;
PI	Pizza M;
XX	
XX	WPI: 2001-557776/62.
DR	P-PSDB; AAE10035.
XX	
PT	Heterologous expression for the expression of two or more Neisserial
XX	proteins in fused state -
XX	
XX	Example 23; Page 27; 52pp; English.
XX	
CC	The present invention relates to a method for simultaneous heterologous
CC	expression of two or more Neisserial proteins which are in a fused
CC	state. The method is useful for simultaneous heterologous expression of
CC	two or more Neisserial proteins. A protein that may be unstable or
CC	poorly expressed on its own is assisted by adding a suitable hybrid
CC	pattnr and commercial manufacture is simplified-only one expression and
CC	pulification need to be employed in order to produce two separately-
CC	useful proteins. The present sequence is a DNA encoding
CC	Neisseria meningitidis (serogroup B, strain 2996) 961-ORF46.1
CC	(open reading frame) fusion protein.
XX	
XX	Sequence 2421 BP; 730 A; 659 G; 591 G; 441 T; 0 other.

[illegible]







XX WO200022430-A2.  
 XX 20-APR-2000.  
 XX 08-OCT-1999; 99WO-US23573.  
 XX 09-OCT-1998; 98US-0103794.  
 XX 30-APR-1999; 99US-0132068.  
 XX (CHIR) CHIRON CORP.  
 XX Frazer CM, Hickey E, Peterson J, Tettelin H, Venter JC;  
 PI Masignani V, Galeotti C, Mora M, Ratti G, Scarselli M, Scarlato V;  
 PI Rappuoli R, Pizza M;  
 DR WPI: 2000-318079/27.

XX Isolated nucleotide sequences of *Neisseria meningitidis* which can be  
 PT used in the diagnosis and treatment of *N. meningitidis* infection and  
 PT other *Neisseria* infections, for example, *N. gonorrhoea* -  
 XX Claim 7; Page 629-865; 1760pp; English.

XX The present invention describes methods of obtaining immunogenic  
 CC proteins from *Neisseria* genomic sequences, AAA81453 to AAA82414  
 CC represent specifically claimed *Neisseria meningitidis* genomic DNA  
 CC sequences, AAA81256 to AAA81303 and AAB25620 to AAB25653 represent  
 CC *Neisseria* DNA sequences and their corresponding proteins; AAA81254 to  
 CC AAA81259 and AAA81304 to AAA81321 represent PCR primers used in the  
 CC isolation of *Neisseria meningitidis* DNA sequences; and AAA81322 to  
 CC AAA81452 represent *Neisseria meningitidis* *WenB* polynucleotide ORF  
 CC sequences, which are all used in the exemplification of the present  
 CC invention. The nucleic acid sequences, protein sequences, and antibodies  
 CC against them, can be used in the manufacture of a composition. The  
 CC composition can be used as a medicament (or in the manufacture of a  
 CC medicament) for treating, preventing or diagnosing infection due to  
 CC *Neisseria* bacteria. For example, some of the identified proteins could  
 CC be components of vaccines against *Neisseria meningitidis* B; against all serotypes;  
 CC and/or against all pathogenic *Neisseria*. Identification of sequences  
 CC from the bacterium will also facilitate production of biological probes,  
 CC particularly organism-specific probes. Attempts to make efficacious  
 CC *Meningococcus B* vaccines have failed mainly due to antigen tolerance.  
 CC Multivalent vaccines have also been tried but none have successfully  
 CC overcome antigenic variability. The provision of further, complete  
 CC sequences may provide an opportunity to identify secreted or surface  
 CC exposed proteins that may be presumed targets for the immune system and  
 CC which are not antigenically variable or at least more conserved than  
 CC other more variable regions.

XX Sequence 837096 BP; 207534 A; 227065 C; 205215 G; 197280 T; 2 other;  
 XX

XX Query Match 33.7%; Score 563.8; DB 21; Length 837096;  
 XX Best Local Similarity 95.6%; Pred. No. 3.7e-162;  
 XX Matches 580; Conservative 0; Mismatches 27; Indels 0; Gaps 0;

QY 703 atcgcgcgagcagaagaattgttcgagcgagcgatgctgagcgtatgaagcgaagc 762  
 DB 1 atcgcgcgagcagaagaattgttcgagcgagcgatgctgagcgtatgaagcgaagc 60  
 QY 763 tcaaacattgcttattgacagcgcttggcttcttcacacgaaagaatggcgcg 822  
 DB 61 tcaaacattgcttattgacagcgcttggcttcttcacacgaaagaatggcgcg 120  
 QY 823 atcaacgatttgcagatattggcgcaactcaagactatggcgcgacgacgacgacg 882  
 DB 121 atcaacgatttgcagatattggcgcaactcaagactatggcgcgacgacgacgacg 180  
 QY 883 tgggagcgcacaaaccccaatgctgcgcacaaagcctagaagcgcctcagcaatattt 942  
 DB 181 tgggagcgcacaaaccccaatgctgcgcacaaagcctagaagcgcctcagcaatattt 240

QY 943 gcagtcaccccgctcaaaaggatggagcgttttcggggaatacagcgttggcgacac 1002  
 DB 241 gcagtcaccccgctcaaaaggatggagcgttttcggggaatacagcgttggcgacac 300  
 QY 1003 acggcacatcctgttcaaacggttcgcagattggcgagatcgcatctgcgaaggaatcc 1062  
 DB 301 acggcacatcctgttcaaacggttcgcagattggcgagatcgcatctgcgaaggaatcc 360  
 QY 1063 gccgtcagcagacatttgcgagatggcgacatgacgcaataccgctcccttaccattcc 1122  
 DB 361 gccgtcagcagacatttgcgagatggcgacatgacgcaataccgctcccttaccattcc 420  
 QY 1123 cgaatcctgttcaaacatttgagcagcggttgcgcaagaagaatacctcctcaacc 1182  
 DB 421 cgaatcctgttcaaacatttgagcagcggttgcgcaagaagaatacctcctcaacc 480  
 QY 1183 gtgcgcgcgtcaaaaggaagaatgtgaacacggaacaaacgacccgaagaccaa 1242  
 DB 481 gtgcgcgcgtcaaaaggaagaatgtgaacacggaacaaacgacccgaagaccaa 540  
 QY 1243 gtgcgcgttgcagtaaggggttcgcaatttgaagaagcgttaaatcagatacaga 1302  
 DB 541 gtgcgcgttgcagtaaggggttcgcaatttgaagaagcgttaaatcagatacaga 600  
 QY 1303 atataa 1309  
 DB 601 ctcgata 607

RESULT 25  
 AA54164/c  
 ID AA54164 standard; DNA: 396 BP.  
 AA54164;

XX 21-MAR-2000 (first entry)

XX *Neisseria meningitidis* ORF 686 partial DNA sequence SEQ ID NO:2277.

XX *Neisseria meningitidis*; *Neisseria gonorrhoeae*; antigen; vaccine;  
 KW antigenic; diagnosis; immunogenic; infection; meningitis; septicemia;  
 KW antibacterial; gene therapy; ds.

XX *Neisseria meningitidis*.

XX WO9957280-A2.

XX 11-NOV-1999.

XX 30-APR-1999; 99WO-US09346.

XX 01-MAY-1998; 98US-0083758.  
 XX 31-JUL-1998; 98US-0094869.  
 XX 02-SEP-1998; 98US-0098994.  
 XX 09-OCT-1998; 98US-0099062.  
 XX 09-OCT-1998; 98US-0103749.  
 XX 09-OCT-1998; 98US-0103794.  
 XX 25-FEB-1999; 98US-0103796.  
 XX 25-FEB-1999; 99US-0121528.

XX (CHIR) CHIRON CORP.  
 XX (GENO-) INST GENOMIC RES.

XX Frazer C, Galeotti C, Grandi G, Hickey E, Masignani V, Mora M;  
 PI Petersen J, Pizza M, Rappuoli R, Ratti G, Scarlato E, Scarselli M;  
 PI Tettelin H, Venter JC;  
 DR WPI: 2000-062150/05.  
 DR P-PSDB: AAY75402.

XX Novel *Neisseria* polypeptides predicted to be useful antigens for  
 PT vaccines and diagnostics -

Sequence 396 BP: 66 A: 103 C: 172 G: 105 T: 105  
CC represent novel *Neisseria meningitidis* and *N. gonorrhoeae* polynucleotides  
CC and polypeptides. AAZ54537 to AAZ54576 and N. gonorrhoeae polynucleotides  
CC PCR primers used in the exemplification of AAZ54576 and AAZ54616 to AAZ55473 represent  
CC polypeptides, the polynucleotides and the present invention. The  
CC the invention can be used as vaccines, antibodies and compositions of  
CC immunogenic compositions. The polypeptides can be used in the  
CC manufacture of medicaments for treating or preventing infection due to  
CC *Neisseria* bacteria (e.g. meningitis and septicaemia), to detect the  
CC presence of *Neisseria* bacteria, or to raise antibodies. They may also  
CC be used to screen for agonists or antagonists, which may themselves  
CC have use as antibacterial agents. The polynucleotides of the invention  
CC may also be used in gene therapy protocols.

[illegible]

XX	21 MAR-2000	(first entry)
XX		
DE	Neisseria meningitidis ORF 686 partial DNA sequence	SEQ ID NO:2275.
XX		
KW	Neisseria meningitidis; Neisseria gonorrhoeae; antigen; diagnosis; immunogenic; infection; meningitis; septicaemia;	
KW	antibacterial; gene therapy; ds.	
XX		
OS	Neisseria meningitidis.	
XX		
PN	WO957280-A2.	
XX		
PD	11-NOV-1999.	
XX		
PF	30-APR-1999.	99WO-US09346.

PA (CHINA) CHIRON CORP.  
XX (GENO-) INST GENOMIC RES.  
PI  
PI Fraser C, Galeotti C, Grandi G, Hickey E,  
PI Petersen J, Piza M, Rappulli R, Ratli G,  
PI Tettelin H, Venter JC,  
XX  
XX MPI; 2000-062150/05.  
DR P-PSDB; MAY75401.  
XX

represent novel *Neisseria meningitidis* and *N. gonorrhoeae* polynucleotides and polypeptides. ANZ54537 to ANZ54576 and N<sub>1</sub> gonorrhoeae polynucleotides PCR primers used in the exemplification of the present invention. The polypeptides, the polynucleotides, antibodies and compositions of the invention can be used as vaccines, as diagnostic reagents, and as immunogenic compositions. The polypeptides can be used in the manufacture of medicaments for treating or preventing infection due to *Neisseria* bacteria (e.g. meningitis and septicemia), to detect the presence of *Neisseria* bacteria, or to raise antibodies. They may also be used to screen for agonists or antagonists, which may themselves have use as antibacterial agents. The polynucleotides of the invention may also be used in gene therapy protocols.

Query Match	23.28;	Score 387;	DB 21;	Length 402;
Best Local Similarity	94.7%;	Pred. No. 2.5e-109;		
Matches 393;	Conservative	0;	Mismatches 22;	Total 0

328 | toacatcogattccgtatgataagccggtatgcctgttaacgatttaagcctttacgaltc | 387  
442 | TCACATTCGATTCTGTATGAACGCCGGTGTGCTCCGTGACGATTTAGCTTTACCGATTC | 433  
368 | catctggagcgatatacaaacacatccgcgcgcgaagcgctatgaacggtgccaagggcgcgcg | 447  
432 | CATGGGACGSGATAGGAACACCATTCGCCGACGAGCGCTATGAGGGCCACAGGGCGCGGC | 373  
448 | tatccggctccccaagcgcggaaggatataatacagctatagacataaagaaggttgccaa | 507  
372 | TATCCGCGCTCCCAAGGGCGCAGGGATATATACAGCTAGCAATATAAAGGGGTGCCAA | 313  
508 | aatatccgcttaaccctbaaccggaacccggaagcagccgaacaaagcgttltgcacgcttc | 567  
312 | AATATCCGCTCAACTGTACCGGACCGAACCCGACCGGACCAACCGCTTCCGACCGCTTTC | 253  
568 | cacatatccggtagtatagcttgaacgcaagagtagttagcgacgattccaagaagcgccaccga | 627  
252 | CACATATCCGGGTATGTATGCTGACGCAAGGAGTAGGCGAGCATTTCAACCCGCGCACCCGA | 193  
628 | taacagccccgagctggaacaatatggggcaatgtccgcgcgaagcttcaacggtacattgagat | 687  
192 | TACACCCCGGAGCTGAGCAATGGGCAATGGCGCAATGGCGCAATGGCTTCAACGCGCATGTGAGAT | 133  
688 | atctgtcaaaaacatcatcgcgcgagcagagajanaatttgcgcgcgacgagctatgcg | 742  
132 | ATCTGTAAAAACATCATCGCGCTGTACAGACAAATTTNNNNNNNNNNNNCGCTCCG | 78

RESULT 27  
AAZ54162/C  
ID AAZ54162 standard; DNA: 396 BP.  
XX  
AC AAZ54162:  
XX  
DE 21-MAR-2000 (first entry)  
XX  
DE Neisseria gonorrhoeae ORF 686 partial DNA sequence SEQ ID NO:2273.  
XX  
XX Neisseria meningitidis; Neisseria gonorrhoeae; antigen; vaccine;  
KW antigenic; diagnosis; immunogenic; infection; meningitis; septicemia;  
KW antibacterial; gene therapy; ds.  
XX  
OS Neisseria gonorrhoeae.  
XX  
PN WO957280-A2.  
XX  
PD 11-NOV-1999.  
XX  
PF 30-APR-1999; 99WO-US09346.  
XX  
PR 01-MAY-1998; 98US-0083758.  
PR 31-JUL-1998; 98US-0094869.  
PR 02-SEP-1998; 98US-0098994.  
PR 02-SEP-1998; 98US-0098994.  
PR 09-OCT-1998; 98US-0103749.  
PR 09-OCT-1998; 98US-0103749.  
PR 09-OCT-1998; 98US-0103796.  
PR 25-FEB-1999; 99US-0121528.  
XX  
PA (CHIR ) CHIRON CORP.  
PA (GENO-) INST GENOMIC RES.  
XX  
PI Fraser C, Galeotti C, Grandi G, Hickey E, Masignani V, Mora M;  
PI Petersen J, Pizza M, Rappoli R, Ratti G, Scalato E, Scarselli M;  
PI Tettelin H, Venter JC;  
XX  
DR WPI: 2000-062150/05.  
DR P-PSDB: AAY75400.  
XX  
PT Novel Neisserial polypeptides predicted to be useful antigens for  
PT vaccines and diagnostics -  
XX  
PS Claim 7; Page 1100; 1453pp; English.  
XX  
CC AAZ53015 to AAZ54536, AAZ54577 to AAZ54615, and AAY74253 to AAY75941  
CC represent novel Neisseria meningitidis and N. gonorrhoeae polynucleotides  
CC and polypeptides. AAZ54537 to AAZ54576 and AAZ54616 to AAZ5473 represent  
CC PCR primers used in the exemplification of the present invention. The  
CC polypeptides, the polynucleotides, antibodies and compositions of  
CC the invention can be used as vaccines, as diagnostic reagents, and as  
CC immunogenic compositions. The polypeptides can be used in the  
CC manufacture of medicaments for treating or preventing infection due to  
CC Neisserial bacteria (e.g. meningitis and septicemia) to detect the  
CC presence of Neisseria bacteria, or to raise antibodies. They may also  
CC be used to screen for agonists or antagonists, which may themselves  
CC have use as antibacterial agents. The polynucleotides of the invention  
CC may also be used in gene therapy protocols.  
XX  
SQ Sequence 396 BP; 62 A; 104 C; 127 G; 103 T; 0 other;

Query Match 23.0%; Score 384.8; DB 21; Length 396;  
Best Local Similarity 98.2%; Pred. No. 1.1e-108;  
Matches 389; Conservative 0; Mismatches 7; Indels 0; Gaps 0;

OY 328 tcacatccgagtcgtgtaagccggtagtcggttaagcagatcagccttaccgcatc 387  
DB 396 TCACATTCGATCTGACGAAGCCGGTAGTCCCTTGACGAGATTACGCCATTACGCCATC 337

OY 388 cattggagacgatatagcaaacaccatcccgccgagcgtatgacgggcccacaggcgagcgc 447  
DB 336 CATTTGGACGGATACGAAACACCATCCCGCCGAGCGGTATGACGGCCACAGGGCGCGCG 277  
OY 448 tatccgctcccaaaagcgcgagggatatacagctacgacataaaaggcgttcccaa 507  
DB 276 TATCCCGCTCCCAAAAGCGCGGAGGATATACAGCTACGACATAAAGGCGTTGCCCA 217  
OY 508 aatatccgcttaaaccttgcgagcgaacccgtagacgcgcaacagcgttgcagcgttcc 567  
DB 216 AATATCCGCTCAACCTGACCGACACACCCAGCAGCCGACACAGCGCTTCCGACCGTTTC 157  
OY 568 cacataccgtagtctgctgacgcaagagtagtgcgaggtatcaaacgcgacccga 627  
DB 156 CACATATCGCGCGGTATGCTAGACGCAAGAGTAGCGGAGATTCAAAACGCCACCGCA 97  
OY 628 tacagcccgagctgacgaatcggtggaatgcccgcggaagcttcaagcagcactcgat 687  
DB 96 TACAGCCCGAGCTGACAGATCGGCAATGCGCGAAGCTTCAACGCGACTCGAGAT 37  
OY 688 atcgtcaaaaacatcaccgagcgagcaggaagt 723  
DB 36 ATCGTCAAAAACATCATTCGCGCGCGCAGAGAAATT 1

RESULT 28  
AAZ54260  
ID AAZ54260 standard; DNA: 1731 BP.  
XX  
AC AAZ54260;  
XX  
DE 21-MAR-2000 (first entry)  
XX  
DE Neisseria gonorrhoeae ORF 730 partial DNA sequence SEQ ID NO:2469.  
XX  
KW Neisseria meningitidis; Neisseria gonorrhoeae; antigen; vaccine;  
KW antigenic; diagnosis; immunogenic; infection; meningitis; septicemia;  
KW antibacterial; gene therapy; ds.  
XX  
OS Neisseria gonorrhoeae.  
XX  
PN WO957280-A2.  
XX  
PD 11-NOV-1999.  
XX  
PF 30-APR-1999; 99WO-US09346.  
XX  
PR 01-MAY-1998; 98US-0083758.  
PR 31-JUL-1998; 98US-0094869.  
PR 02-SEP-1998; 98US-0098994.  
PR 02-SEP-1998; 98US-0098994.  
PR 09-OCT-1998; 98US-0103749.  
PR 09-OCT-1998; 98US-0103749.  
PR 09-OCT-1998; 98US-0103796.  
PR 25-FEB-1999; 99US-0121528.  
XX  
PA (CHIR ) CHIRON CORP.  
PA (GENO-) INST GENOMIC RES.  
XX  
PI Fraser C, Galeotti C, Grandi G, Hickey E, Masignani V, Mora M;  
PI Petersen J, Pizza M, Rappoli R, Ratti G, Scalato E, Scarselli M;  
PI Tettelin H, Venter JC;  
XX  
DR WPI: 2000-062150/05.  
DR P-PSDB: AAY75498.  
XX  
PT Novel Neisserial polypeptides predicted to be useful antigens for  
PT vaccines and diagnostics -  
XX  
PS Claim 7; Page 1181; 1453pp; English.  
XX  
CC AAZ53015 to AAZ54536, AAZ54577 to AAZ54615, and AAY74253 to AAY75941  
CC represent novel Neisseria meningitidis and N. gonorrhoeae polynucleotides

CC and polypeptides. AA254537 to AA254576 and AA254616 to AA25473 represent  
 CC PCR primers used in the exemplification of the present invention. The  
 CC polypeptides, the polynucleotides, antibodies and compositions of  
 CC the invention can be used as vaccines, as diagnostic reagents, and as  
 CC immunogenic compositions. The polypeptides can be used in the  
 CC manufacture of medicaments for treating or preventing infection due to  
 CC *Neisseria* bacteria (e.g. meningitis and septicemia), to detect the  
 CC presence of *Neisseria* bacteria, or to raise antibodies. They may also  
 CC be used to screen for agonists or antagonists, which may themselves  
 CC have use as antibacterial agents. The polynucleotides of the invention  
 CC may also be used in gene therapy protocols.

Sequence 1731 BP; 507 A; 521 C; 418 G; 285 T; 0 other;

Query Match 18.1%; Score 302; DB 21; Length 1731;  
 Best Local Similarity 58.8%; Pred. No. 1, 2e-82;  
 Matches 540; Conservative 0; Mismatches 375; Indels 3; Gaps 1;

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OY 35 ccatatcgagctgtcctcgatgatgacacgacctgaatttgcaaacgattct 94
DB ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| |||
DB 44 ccgtacgagcggtcgacatcatagccgcctcgcgagcattggtgcgaacccgt 103
OY 95 ttatcgagcggttcgacgctgacattgcaaccgaggaataaccattctcg 154
DB ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| |||
DB 104 tcatatcgatgaacccacgacgacgacgacgacgacgacgacgacgacgac 163
OY 155 gcagcagggggagac---ttgcgagcgagcggtcatatcgattggaacatata 211
DB ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| |||
DB 164 ggcagcccgcgagcggttcgacgacgacgacgacgacgacgacgacgacgac 223
OY 212 gcaatggttggaacacgctgacgacgacgacgacgacgacgacgacgacgac 271
DB ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| |||
DB 224 ccaacagatgagcaacacgctgacgacgacgacgacgacgacgacgacgacgac 283
OY 272 ttctcgcttttcgacgacgacgacgacgacgacgacgacgacgacgacgac 331
DB ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| |||
DB 284 ccgtcgcttttcgacgacgacgacgacgacgacgacgacgacgacgacgac 343
OY 332 attcgaattctgaagcggtgacgacgacgacgacgacgacgacgacgacgac 391
DB ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| |||
DB 344 acgagcagcgaggaagaagaagaagaagaagaagaagaagaagaagaagaaga 403
OY 392 gggagcgatgaacacacacacacacacacacacacacacacacacacacac 451
DB ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| |||
DB 404 gggagcgatgaacacacacacacacacacacacacacacacacacacacac 463
OY 452 ccgtcgcttttcgacgacgacgacgacgacgacgacgacgacgacgacgac 511
DB ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| |||
DB 464 ccaacgacgagcgagcgagcgagcgagcgagcgagcgagcgagcgagcgag 523
OY 512 tccgctcaacgacgacgacgacgacgacgacgacgacgacgacgacgac 571
DB ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| |||
DB 524 tcaactcaacgacgacgacgacgacgacgacgacgacgacgacgacgac 583
OY 572 ataccggtatgctgacgacgacgacgacgacgacgacgacgacgacgacgac 631
DB ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| |||
DB 584 acctcgagcaattcttcgacgacgacgacgacgacgacgacgacgacgacgac 643
OY 632 gcccgagctgagcagcagcagcagcagcagcagcagcagcagcagcagcagc 691
DB ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| |||
DB 644 atgcaagcttcgacgacgacgacgacgacgacgacgacgacgacgacgac 703
OY 692 tcaaaacatcatcgcgcgcgcgcgcgcgcgcgcgcgcgcgcgcgcgcgcgcg 751
DB ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| |||
DB 704 cgctcaaccccttatacgcgcgcgcgcgcgcgcgcgcgcgcgcgcgcgcgcg 763
OY 752 taagcgagctcaacacattgctgacgacgacgacgacgacgacgacgacgac 811
DB ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| |||
DB 764 cgcgtatgcatagcaaacgcgatgacgacgacgacgacgacgacgacgacgac 823
OY 812 agatgagcgcatcaaatgattgacgacgacgacgacgacgacgacgacgacgac 871
DB ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| |||

```

## RESULT 29

AA254261  
 ID AA254261 standard; DNA; 1404 BP.

AC AA254261;

DT 21-MAR-2000 (first entry)

DE *Neisseria meningitidis* ORF 730 partial DNA sequence SEQ ID NO.2471.

KW *Neisseria meningitidis*; *Neisseria gonorrhoeae*; antigen; vaccine;

KW antigenic; diagnosis; immunogenic; infection; meningitis; septicemia;

OS antibacterial; gene therapy; ds.

OS *Neisseria meningitidis*.

PN WO957280-A2.

PD 11-NOV-1999.

XX 30-APR-1999; 99WO-US09346.

XX 01-MAY-1998; 98US-0083758.

XX 31-JUL-1998; 98US-0094869.

XX 02-SEP-1998; 98US-0098994.

XX 02-SEP-1998; 98US-0098994.

XX 09-OCT-1998; 98US-0103749.

XX 09-OCT-1998; 98US-0103749.

XX 09-OCT-1998; 98US-0103749.

XX 25-FEB-1999; 99US-0121528.

XX (CHIR ) CHIRON CORP.

PA (GENO ) INST GENOMIC RES.

PI Fraser C, Galeotti C, Grandi G, Hickey E, Masignani V, Mora M,

PI Petersen J, Piza M, Rappunli R, Ratti G, Scalato E, Scarselli M,

PI Tettelin H, Venter JC;

DR WPI: 2000-062150/05.

XX P-PSDB: AAY75499.

XX Novel *Neisseria* polypeptides predicted to be useful antigens for

XX vaccines and diagnostics

Claim 7; Page 1181-1182; 1453pp; English.

AA253015 to AA254536, AA254577 to AA254615, and AAY74253 to AAY75941  
 represent novel *Neisseria meningitidis* and *N. gonorrhoeae* polynucleotides  
 and polypeptides. AA254537 to AA254576 and AA254616 to AA25473 represent  
 PCR primers used in the exemplification of the present invention. The  
 polypeptides, the polynucleotides, antibodies and compositions of  
 the invention can be used as vaccines, as diagnostic reagents, and as  
 immunogenic compositions. The polypeptides can be used in the  
 manufacture of medicaments for treating or preventing infection due to  
*Neisseria* bacteria (e.g. meningitis and septicemia), to detect the  
 presence of *Neisseria* bacteria, or to raise antibodies. They may also  
 be used to screen for agonists or antagonists, which may themselves  
 have use as antibacterial agents. The polynucleotides of the invention  
 may also be used in gene therapy protocols.

Sequence 1404 BP; 430 A; 397 C; 333 G; 244 T; 0 other;



Query Match 17.6%; Score 294.4; DB 21; Length 1404;  
 Best Local Similarity 58.1%; Pred. No. 2.4e-80;  
 Matches 539; Conservative 0; Mismatches 386; Indels 3; Gaps 1;

```

35 ccatactgagctgtgctgcgcatgcatgcaacgctcgaattggaacgattctt 94
   ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| |||
Db 44 ccgtatgcgagcgccgcatctatacagccgcccgcgagcttggcgcaagacc 103
   ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| |||
QY 95 ttatccgagagttctgcagctcagcattcgacccgagcggaataaccattcg 154
   ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| |||
Db 104 tcatccgataaagcccaacgagcagcactcgaacccgaggaataaccattcg 163
   ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| |||
QY 155 gacgagagggggaac---ttgcgagcgagcggtatcatcgattgggaataaa 211
   ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| |||
Db 164 ggcagccgagcgagcggttccgacgagcagcaaatcaatcattcgaagata 223
   ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| |||
QY 212 gccatcagttgggcaacctgttcatccagcgagcgccatgaaggaataatgc 271
   ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| |||
Db 224 ccacacagatgggcaacctgttcatccagcgagcaaatcaatcgaacgcaat 283
   ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| |||
QY 272 tgcgcgcttccgacacgagcagcagcagcagcagcagcagcagcagcagc 331
   ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| |||
Db 284 acacccgcttccgagacacgagcagcagcagcagcagcagcagcagcagc 343
   ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| |||
QY 332 atccgattctgataagcggtagtccggtgacgattcagccttaccgattcat 391
   ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| |||
Db 344 acgagcgagcgaggaagaaagcaagcttgacgaagcttaccgattcagcag 403
   ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| |||
QY 392 gggagcgatacgaacacccatcccgagcgagctatgagcgagcagcgagcg 451
   ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| |||
Db 404 gggagcgatacgaacacccatcccgagcgagctatgagcgagcagcgagcg 463
   ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| |||
QY 452 ccgctcccaagcgagcgagcagcagcagcagcagcagcagcagcagcagc 511
   ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| |||
Db 464 ccaacctaagcgagcagcagcagcagcagcagcagcagcagcagcagcag 523
   ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| |||
QY 512 tccgctcaacacgttcgacacacgagcagcagcagcagcagcagcagcagc 571
   ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| |||
Db 524 tcaacccaatccgacacgagcagcagcagcagcagcagcagcagcagcag 583
   ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| |||
QY 572 ataccggtatgattctgacgagcagcagcagcagcagcagcagcagcagc 631
   ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| |||
Db 584 aacctgcagcagcagcagcagcagcagcagcagcagcagcagcagcagcag 643
   ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| |||
QY 632 gcccgagcagcagcagcagcagcagcagcagcagcagcagcagcagcagc 691
   ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| |||
Db 644 atgcgaagcagcagcagcagcagcagcagcagcagcagcagcagcagcag 703
   ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| |||
QY 692 tcaaaaacatcagcgagcagcagcagcagcagcagcagcagcagcagcagc 751
   ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| |||
Db 704 cgtcaaccccccttaccgagcgagcagcagcagcagcagcagcagcagcag 763
   ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| |||
QY 752 taagcagagcagcagcagcagcagcagcagcagcagcagcagcagcagcag 811
   ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| |||
Db 764 cgcgctatgcatcagcagcagcagcagcagcagcagcagcagcagcagcag 823
   ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| |||
QY 812 agatgcgagcagcagcagcagcagcagcagcagcagcagcagcagcagcag 871
   ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| |||
Db 824 aattgcgagcagcagcagcagcagcagcagcagcagcagcagcagcagcag 883
   ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| |||
QY 872 ccatacgcagcagcagcagcagcagcagcagcagcagcagcagcagcagcag 931
   ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| |||
Db 884 ccgttacgcgagcagcagcagcagcagcagcagcagcagcagcagcagcagc 943
   ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| |||
QY 932 atatactttagcagcagcagcagcagcagcagcagcagcagcagcagcagc 959
   ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| |||
Db 944 acgttcgagcagcagcagcagcagcagcagcagcagcagcagcagcagcag 971
   ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| |||

```

RESULT 30  
 AAA81467/C  
 ID AAA81467 standard; DNA; 25509 BP.

AAA81467;  
 04-DEC-2000 (first entry)  
 N. meningitidis partial DNA sequence gnm\_15 SEQ ID NO:15.  
 Neisseria meningitidis: Neisseria gonorrhoeae; genome; immunogenic;  
 antigen; vaccine; diagnosis; infection; antibacterial; identification;  
 Meningococcus B; MenB; ds.  
 Neisseria meningitidis.  
 WO200022430-A2.  
 20-APR-2000.  
 08-OCT-1999; 99WO-US23573.  
 09-OCT-1998; 98US-0103794.  
 30-APR-1999; 99US-0132068.  
 (CHIR) CHIRON CORP.  
 Frazer CM, Hickey E, Peterson J, Tettelin H, Venter JC;  
 Maignani V, Galeotti C, Mora M, Ratti G, Scarselli M, Scarlato V;  
 Rappelli R, Pizza M;  
 WPI; 2000-318079/27.  
 Isolated nucleotide sequences of Neisseria meningitidis which can be  
 used in the diagnosis and treatment of N. meningitidis infection and  
 other Neisserial infections, for example, N.gonorrhoea -  
 Claim 7: Page 399-406; 1760pp; English.  
 The present invention describes methods of obtaining immunogenic  
 proteins from Neisseria genomic sequences. AAA81453 to AAA82414  
 represent specifically claimed Neisseria meningitidis genomic DNA  
 sequences; AAA81260 to AAA81303 and AAB25620 to AAB25663 represent  
 CC Neisseria DNA sequences and their corresponding proteins; AAA81254 to  
 CC AAA81259 and AAA81304 to AAA81321 represent PCR primers used in the  
 CC isolation of Neisseria meningitidis DNA sequences; and AAA81322 to  
 CC AAA81452 represent Neisseria meningitidis MenB polynucleotide ORF  
 CC sequences, which are all used in the exemplification of the present  
 CC invention. The nucleic acid sequences, protein sequences, and antibodies  
 CC against them, can be used in the manufacture of a composition. The  
 CC composition can be used as a medicament (or in the manufacture of a  
 CC medicament) for treating, preventing or diagnosing infection due to  
 CC Neisserial bacteria. For example, some of the identified proteins could  
 CC be components of vaccines against Neisseriae. Identification of sequences  
 CC and/or against all pathogenic Neisseriae. Identification of biological probes,  
 CC from the bacterium will also facilitate production of biological probes,  
 CC particularly organism-specific probes. Attempts to make efficacious  
 CC Meningococcus B vaccines have failed mainly due to antigen tolerance.  
 CC Multivalent vaccines have also been tried but none have successfully  
 CC overcome antigenic variability. The provision of further, complete  
 CC sequences may provide an opportunity to identify secreted or surface  
 CC exposed proteins that may be presumed targets for the immune system and  
 CC which are not antigenically variable or at least more conserved than  
 CC other more variable regions.  
 XX Sequence 25509 BP; 6157 A; 6156 C; 6549 G; 6647 T; 0 other;  
 SQ

Query Match 17.6%; Score 294.4; DB 21; Length 25509;  
 Best Local Similarity 58.1%; Pred. No. 1.4e-79;  
 Matches 539; Conservative 0; Mismatches 386; Indels 3; Gaps 1;  
 35 ccatactgagctgtgctgcgcatgcatgcaacgctcgaattggaacgattctt 94  
 ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| |||  
 Db 24715 CCGTACGGCGGCGCAGCTATACAGCCGCCCTCGCGGCGACTTGGCGCAAGACCCGT 24656







sequence 149/ BP; 4/5 A; 319 C; 365 G; 338 T; 0 other;

Query Match	7.3%;	Score 121.8;	DB 20;	Length 1497;
Best Local Similarity	66.7%;	Pred. No. 8e-27;		
Matches 174;	Conservative	0;	Mismatches 87;	Indels 0;

QY	237	cgaaagacgagcgccatnaaggaatatcgctcacatctgcgctttccgatacgaagga	296
Db	243	cgaaagcagcaggaattgaagtgatctgcgcataaaccatttttcaggacagaca	302
QY	297	cgaaagtcattcccccctcgacacacatccctcacattcgattctatgaacggtag	356
Db	303	cgaaagtcacacagctcgtctcgataatcatgatctcaaaaagcacttcgattcagcgcg	362
QY	357	tcgcggttgagagtttagcctttaccgcataccatttggagcagatcgaacacatccgcg	416
Db	363	cgatgaacgagcggttttaacgctttacaaacttcactcgcagcaggtcgcgaataatccgcg	422
QY	417	cgacgcgtatgaagcgccacagagcgcgcgcttccgcgtcccaaaaggcgagggatat	476
Db	423	agacgcgatatgaagcgccccaagcgcggttatccgcgaaccacaagggcacaaggatat	482
QY	477	atacagctacgcagataaagg	497
Db	483	atacagctacgcatacaagg	503

RESULT 34

ID	AAZ53469	standard; DNA; 1497 BP.
XX		

AC AA253469;

DT 21-MAR-2000 (first entry)  
XX

Accession	Gene	ORF	Length	partial	DNA sequence	SEQ ID NO:887.
XX						
XX						

antibacterial; gene therapy; ds.

05 *Neisseria gonorrhoeae*.  
xy

PN W09957280-A2.

PD 11-NOV-1999.  
xy

30-APR-1999; 99WO-US09346.

PR 01-MAY-1998; 98US-0083758.  
PR 31-JUN-1998; 98US-0083759.

02-SEP-1998; 98US-0098994.  
02-SEP-1998; 98US-0000000

09-0CT-1998; 98US-0103749.  
09-0CT-1998; 98US-0103704.  
09-0CT-1998; 98US-0103704.  
09-0CT-1998; 98US-0103704.

25-FEB-1999: 98US-0131538.

(CHIR ) CHIRON COPP

(CHIR ) CHIRON CORP

(GENO-) INST GENOMIC RES.

PA (GENO-) INST GENOMIC RES.

XX Fraser C, Galeotti C, Grandi G, Hickey E, Maignani V, Mora M;

PI Petersen J, Pizsa M, Rappuoli R, Ratti G, Scalato E, Scarselli M;

PI Tettelin J, Venter JC;

XX WPI: 2000-062150/05.

DR P-PSDB: AAY74707.

XX Novel Neisserial polypeptides predicted to be useful antigens for

PT vaccines and diagnostics

PS Claim 7; Page 543-544; 1453pp; English.

XX AA253015 to AA254536, AA254577 to AA254615, and AAY74253 to AAY75941

CC represent novel *Neisseria meningitidis* and *N. gonorrhoeae* polynucleotides

CC and polypeptides. AA254537 to AA254576 and AA254616 to AA25473 represent

CC PCR primers used in the exemplification of the present invention. The

CC polypeptides, the polynucleotides, antibodies and compositions of

CC the invention can be used as vaccines, as diagnostic reagents, and as

CC immunogenic compositions. The polypeptides can be used in the

CC manufacture of medicaments for treating or preventing infection due to

CC *Neisseria* bacteria (e.g. meningitis and septicemia), to detect the

CC presence of *Neisseria* bacteria, or to raise antibodies. They may also

CC be used to screen for agonists or antagonists, which may themselves

CC have use as antibacterial agents. The polynucleotides of the invention

CC may also be used in gene therapy protocols.

XX SO Sequence 1497 BP; 475 A; 319 C; 365 G; 338 T; 0 other;

Query Match 7.3%; Score 121.8; DB 21; Length 1497;

Best Local Similarity 66.7%; Pred. No. 8e-27; Indels 0; Gaps 0;

Matches 174; Conservative 0; Mismatches 87;

237 ccagcgagcgagcgaataatcgctacatgctcgttccgattccgacggca 296

243 cgaacgagcagatggaagggtgtatcgctgaacacatttcagacagca 302

297 cgaagtcattcccttcgacacacatgctcgttgcgttgcgtgtag 356

303 cgaagtcacagctcgttcgataatcgttaaaagacacttcgtatcagcgag 362

357 tccggtgagcggttcgacgttaccgcatcgttgagcgagatacgaacacccgc 416

363 cgtagacgagcggtttacggttaccgcatcgttgagcgagatacgaacacccgc 422

417 cgaacgctatgacgagcagacagcggtcgtcgttccgacaaagcgagagat 476

423 agacgcatatgacgagcgtcgaagcggtatccggaacacaaagggagagat 482

477 atacagctacgacataaagg 497

483 atacagctacatacaagg 503

RESULT 35

AA70386

ID AA70386 standard; DNA: 3287 BP.

AA70386;

08-DEC-1997 (first entry)

Neisseria adhesin proteins.

Neisseria gonorrhoeae; adhesin; lipoprotein; OrfA; OrfI; OrfB; ss.

Neisseria gonorrhoeae.

key Location/Qualifiers

-35-signal 63.68

FT /tag- a

FT -10-signal 78..83

FT /\*tag- b

FT RBS 124..128

FT /\*tag- c

FT CDS 136..449

FT /\*tag- d

FT /\*label- OrfA

FT -35-signal 514..519

FT /\*tag- e

FT -10-signal 534..539

FT /\*tag- f

FT RBS 571..577

FT /\*tag- g

FT CDS 583..1545

FT /\*tag- h

FT /\*label- OrfI

FT RBS 1573..1579

FT /\*tag- i

FT CDS 1585..3114

FT /\*tag- j

FT /\*label- OrfB

DE19534579-A1.

20-MAR-1997.

18-SEP-1995; 95DE-1034579.

18-SEP-1995; 95DE-1034579.

(PLAC) MAX PLANCK GES FOERDERUNG WISSENSCHAFTEN.

Fischer E, Maier J, Meyer TF, Rudel T, Scheuerfling I;

WPI: 1997-180942/17.

P-PSDB: AAW18784, AAW18785, AAW18786.

Nucleic acids encoding *Neisseria* adhesin proteins - for therapeutic

and diagnostic use

Claim 1; Page 11-13; 20pp; German.

OrfA and OrfB in complexes with the protein PilC are capable of

adhering to human cells.

Products obtained from the DNA are useful in medicaments,

diagnostic compns. and vaccines, esp. for treatment of

*Neisseria* gonorrhoea and *N. meningitidis* infections.

Sequence 3287 BP; 1016 A; 741 C; 752 G; 778 T; 0 other;

Query Match 7.3%; Score 121.8; DB 18; Length 3287;

Best Local Similarity 66.7%; Pred. No. 1.3e-26;

Matches 174; Conservative 0; Mismatches 87; Indels 0; Gaps 0;

237 ccagcgagcgagcgaataatcgctacatgctcgttccgattccgacggca 296

1827 cgaacgagcagaggttgaaggcatatcggttatgaacccatttcagacagca 1886

297 cgaagtcattcccttcgacacacatgctcgttgcgttgcgtgtag 356

1887 cgaagtcacagctcgttcgataatcgttaaaagacacttcgtatcagcgag 1946

357 tccggtgagcggttcgacgttaccgcatcgttgagcgagatacgaacacccgc 2006

1947 cgtagacgagcggtttacggttaccgcatcgttgagcgagatacgaacacccgc 2006

417 cgaacgctatgacgagcagacagcggtcgtcgttccgacaaagcgagagat 476

2007 agacgcatatgacgagcgtcgaagcggtatccggaacacaaagggagagat 2066

477 atacagctacgacataaagg 497

|||||

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Db 2067 ataccgtaccatcaagaag 2087

RESULT 36  
AAZ53471  
ID AAZ53471 standard; DNA; 1155 BP.  
XX  
AC AAZ53471;  
XX  
DT 21-MAR-2000 (first entry)  
XX  
DE Neisseria meningitidis ORF 238 partial DNA sequence SEQ ID NO:891.  
XX  
KW Neisseria meningitidis; Neisseria gonorrhoeae; antigen; vaccine;  
KW antigenic; diagnosis; immunogenic; infection; meningitis; septicaemia;  
KW antibacterial; gene therapy; ds.  
XX  
OS Neisseria meningitidis.  
XX  
PN WO957280-A2.  
XX  
PD 11-NOV-1999.  
XX  
PF 30-APR-1999; 99WO-US09346.  
XX  
PR 01-MAY-1998; 98US-0083758.  
PR 31-JUL-1998; 98US-0094869.  
PR 02-SEP-1998; 98US-0098994.  
PR 09-OCT-1998; 98US-0099062.  
PR 09-OCT-1998; 98US-0103749.  
PR 09-OCT-1998; 98US-0103794.  
PR 25-FEB-1999; 99US-0103796.  
XX  
XX (CHIR) CHIRON CORP.  
PA (GENO-) INST GENOMIC RES.  
XX  
PI Fraser C, Galeotti C, Grandi G, Hickey E, Masignani V, Mora M;  
PI Petersen J, Piazza M, Rappuoli R, Ratti G, Scalato E, Scarselli M;  
PI Tettelin H, Venter JC.  
XX  
DR WPI: 2000-062150/05.  
XX  
DR P-PSDB: AAY74709.  
XX  
PT Novel Neisserial polypeptides predicted to be useful antigens for  
XX vaccines and diagnostics  
XX  
PS Claim 7; Page 546; 1453pp; English.  
XX  
XX AAZ53015 to AAZ54536, AAZ54577 to AAZ54615, and AAY74253 to AAY75941  
XX represent novel Neisseria meningitidis and N. gonorrhoeae polynucleotides  
XX and polypeptides. AAZ54537 to AAZ54576 and AAZ54616 to AAZ5473 represent  
XX PCR primers used in the exemplification of the present invention. The  
XX polypeptides, the polynucleotides, antibodies and compositions of  
XX the invention can be used as vaccines, as diagnostic reagents, and as  
XX immunogenic compositions. The polypeptides can be used in the  
XX manufacture of medicaments for treating or preventing infection due to  
XX Neisserial bacteria (e.g. meningitis and septicaemia), to detect the  
XX presence of Neisseria bacteria, or to raise antibodies. They may also  
XX be used to screen for agonists or antagonists, which may themselves  
XX have use as antibacterial agents. The polynucleotides of the invention  
XX may also be used in gene therapy protocols.  
XX  
SQ Sequence 1155 BP; 338 A; 267 C; 282 G; 268 T; 0 other;

Query Match 6.6%; Score 110.2; DB 21; Length 1155;  
Best Local Similarity 62.5%; Pred. No. 2.7e-23;  
Matches 172; Conservative 0; Mismatches 103; Indels 0; Gaps 0;

OY 237 ccagcagcgccgcaatgaagaatgcgcaatttcgcgcttcgcgacgggca 296  
DB 243 cgaacggaagcattgaagcattatgaacacatttcgagacatggaca 302

OY 297 cgaagtcattcccccctcgacacacatgcctacattcgcgattcgatgaagcggtag 356  
DB 303 tgaagtaacacagctccgttcgatacatgatcaaaagacactcgtattcaagcgcg 362  
OY 357 tcccggtgaagcattcagccttaccacacattggagcggtaacacacacccgcg 416  
DB 363 cgtagacggtgttttaccgtttaccacactcactcgacaggggtcgaaatccacgcga 422  
OY 417 cgaagcgtatgagcgccacagggcgcggtatcccgctcccaaggcgcgagggat 476  
DB 423 ggaatgatacagcggcgccgaagcagcgtatattccgcccccgagaggaagggat 482  
OY 477 ataccgtacacataaaggcggtgcccataa 511  
DB 483 ataccgtactatgtaagaagacattcaacaaaa 517

RESULT 37  
AAZ12045  
ID AAZ12045 standard; DNA; 1449 BP.  
XX  
AC AAZ12045;  
XX  
DT 08-OCT-1999 (first entry)  
XX  
DE Neisseria meningitidis strain A complete ORF29 sequence.  
XX  
KW Neisseria meningitidis; Neisseria gonorrhoeae; antigen; vaccine;  
KW treatment; Neisseria infection; meningitis; septicaemia; gonorrhea; ss.  
XX  
OS Neisseria meningitidis.  
XX  
PN WO9924578-A2.  
XX  
PD 20-MAY-1999.  
XX  
PF 09-OCT-1998; 98WO-IB01665.  
XX  
PR 01-SEP-1998; 98GB-0019016.  
PR 06-NOV-1997; 97GB-0023516.  
PR 14-NOV-1997; 97GB-0024190.  
PR 18-NOV-1997; 97GB-0024386.  
PR 27-NOV-1997; 97GB-0025158.  
PR 10-DEC-1997; 97GB-0026147.  
PR 14-JAN-1998; 98GB-0000759.  
XX  
XX (CHIR-) CHIRON SPA.  
XX  
XX Grandi G, Masignani V, Piazza M, Rappuoli R, Scarlato V;  
XX WPI: 1999-327407/27.  
XX  
XX P-PSDB: AAY38582.  
XX  
PT Proteins from Neisseria meningitidis and N. gonorrhoeae useful for  
XX diagnosis, treatment and prevention of infection  
XX  
PS Claim 9; Page 144-145; 524pp; English.  
XX  
XX Nucleotide sequences AAZ11972-21238 represent open reading frames  
XX (ORFs) of Neisseria meningitidis and N. gonorrhoeae which encode  
XX antigenic proteins (see AAY38499-Y38944). The antigenic proteins, their  
XX fragments, their nucleic acids and antibodies are used for diagnosis,  
XX prevention (as vaccines) or treatment of Neisseria infections,  
XX such as meningitis, septicaemia and gonorrhea. Both organisms  
XX are closely related. Fragments of the nucleic acids are useful  
XX as hybridisation probes and antisense reagents.  
XX  
SQ Sequence 1449 BP; 445 A; 310 C; 335 G; 340 T; 19 other;

Query Match 6.4%; Score 107.2; DB 20; Length 1449;  
Best Local Similarity 61.5%; Pred. No. 2.6e-22;

CC as hybridisation probes and antisense reagents.

XX

XX AA253015 to AA254536, AA254577 to AA254615, and AA254615 to AA254615  
 CC represent novel *Neisseria meningitidis* and *N. gonorrhoeae* polynucleotides  
 CC and polypeptides. AA254537 to AA254576 and AA254616 to AA254615 represent  
 CC PCR primers used in the exemplification of the present invention. The  
 CC polypeptides, the polynucleotides, antibodies and compositions of  
 CC the invention can be used as vaccines, as diagnostic reagents, and as  
 CC immunogenic compositions. The polypeptides can be used in the  
 CC manufacture of medicaments for treating or preventing infection due to  
 CC *Neisseria meningitidis* (e.g. meningitis and septicemia), to detect the  
 CC presence of *Neisseria meningitidis*, or to raise antibodies. They may also  
 CC be used to screen for agonists or antagonists, which may themselves  
 CC have use as antibacterial agents. The polynucleotides of the invention  
 CC may also be used in gene therapy protocols.

XX Sequence 1452 BP; 466 A; 298 C; 332 G; 356 T; 0 other;

Query Match 6.4%; Score 107; DB 21; Length 1452;  
 Best Local Similarity 61.8%; Pred. No. 3e-22;  
 Matches 170; Conservative 0; Mismatches 105; Indels 0; Gaps 0;

QY 237 ccagcagcgccattaaagaataatcgctacattgctcgttttcgcgatacgcgga 296  
 Db 243 cgaacgacagcggttgaaagtgatcggttaagaaccatttttcagggcagcgga 302  
 QY 297 cgaagtcacattcccttcgacacacatgcctccacattcgcatttgatgaagccgtag 356  
 Db 303 tgaagtaacacagtcgctgcattatcatatgattcaaaagcattctgttcacgagcg 362  
 QY 357 tcccggttcagcattacgcttaccgacatcattggagcagcagacacacccgcg 416  
 Db 363 tgaagcagcggttttactgtttacacattcatgaacagggcgcgaatccatccgga 422  
 QY 417 cgaagcatttcagcagcagcgcggttcacccgctcccaaggcgcgagagat 476  
 Db 423 ggaatgatacagcagcgcgacgagcagcagcattatccgccccgcgagagagagat 482  
 QY 477 ataccagtaacacataaaggcgttcaccaata 511  
 Db 483 ataccagtaacacataaaggcgttcaccaata 517

RESULT 40  
 ID AAA81473 standard; DNA; 92934 BP.

XX AAA81473;

DT 04-DEC-2000 (first entry)

DE N. meningitidis partial DNA sequence gnm\_21 SEQ ID NO:21.

XX *Neisseria meningitidis*; *Neisseria gonorrhoeae* genome; immunogenic;  
 KW antigen; vaccine; diagnosis; infection; antibacterial; identification;  
 XX *Meningococcus B*; MenB; ds.  
 OS *Neisseria meningitidis*.

XX WO200022430-A2.

XX 20-APR-2000.

XX 08-OCT-1999; 99MO-US23573.

XX 09-OCT-1998; 98US-0103794.

XX 30-APR-1999; 99US-0132068.

XX (CHIR) CHIRON CORP.

PI Frazer CM, Hickey E, Peterson J, Tettelin H, Venier JC;  
 PI Masignani V, Galeotti C, Mora M, Ratti G, Scarselli M, Scarlato V;  
 PI Rappelli R, Pizsa M;

XX WPI: 2000-318079/27.  
 DR Isolated nucleotide sequences of *Neisseria meningitidis* which can be  
 XX used in the diagnosis and treatment of *N. meningitidis* infection and  
 PT other *Neisseria* infections, for example, *N. gonorrhoea*.  
 XX Claim 7; Page 471-498; 1760pp; English.

CC The present invention describes methods of obtaining immunogenic  
 CC proteins from *Neisseria* genomic sequences. AAA81473 to AAA82414  
 CC represent specifically claimed *Neisseria meningitidis* genomic DNA  
 CC sequences. AAA81260 to AAA81303 and AA254620 to AA254663 represent  
 CC *Neisseria* DNA sequences and their corresponding proteins. AAA81254 to  
 CC AAA81259 and AAA81304 to AAA81321 represent PCR primers used in the  
 CC isolation of *Neisseria meningitidis* DNA sequences; and AAA81322 to  
 CC AAA81452 represent *Neisseria meningitidis* MenB polynucleotide ORF  
 CC sequences, which are all used in the exemplification of the present  
 CC invention. The nucleic acid sequences, protein sequences, and antibodies  
 CC against them, can be used in the manufacture of a composition. The  
 CC composition can be used as a medicament (or in the manufacture of a  
 CC medicament) for treating, preventing or diagnosing infection due to  
 CC *Neisseria meningitidis*. For example, some of the identified proteins could  
 CC be components of vaccines against *Meningococcus B*; against all serotypes;  
 CC and/or against all pathogenic *Neisseria*. Identification of sequences  
 CC from the bacterium will also facilitate production of biological probes,  
 CC particularly organism-specific probes. Attempts to make efficacious  
 CC *Meningococcus B* vaccines have failed mainly due to antigen tolerance.  
 CC Multivalent vaccines have also been tried but none have successfully  
 CC overcome antigenic variability. The provision of further, complete  
 CC sequences may provide an opportunity to identify secreted or surface  
 CC exposed proteins that may be presumed targets for the immune system and  
 CC which are not antigenically variable or at least more conserved than  
 CC other more variable regions.

XX Sequence 92934 BP; 24051 A; 24249 C; 21902 G; 22730 T; 2 other;

Query Match 6.4%; Score 107; DB 21; Length 92934;  
 Best Local Similarity 61.8%; Pred. No. 3.9e-21;  
 Matches 170; Conservative 0; Mismatches 105; Indels 0; Gaps 0;

QY 237 ccagcagcgccattaaagaataatcgctacattgctcgttttcgcgatacgcgga 296  
 Db 19270 cgaacgacagcggttgaaagtgatcggttaagaaccatttttcagggcagcgga 19329  
 QY 297 cgaagtcacattcccttcgacacacatgcctccacattcgcatttgatgaagccgtag 356  
 Db 19330 tgaagtaacacagtcgctgcattatcatgattcaaaagcattctgtttacgagcg 19389  
 QY 357 tcccggttcagcattacgcttaccgacatcattggagcagcagacacacccgcg 416  
 Db 19390 tgaagcagcggttttactgtttacacattcatgaacagggcgcgaatccatccgga 19449  
 QY 417 cgaagcatttcagcagcagcgcggttcacccgctcccaaggcgcgagagat 476  
 Db 19450 ggaatgatacagcagcgcgacgagcagcagcattatccgccccgcgagagagat 19509  
 QY 477 ataccagtaacacataaaggcgttcaccaata 511  
 Db 19510 ataccagtaacacataaaggcgttcaccaata 19544

RESULT 41

ID AAF21613 standard; DNA; 172325 BP.

XX AAF21613;

DT 13-MAR-2001 (first entry)

DE *Neisseria meningitidis B* nucleotide sequence SEQ ID NO:114.



KW Neisseria meningitidis; Neisseria gonorrhoeae; immunogenic; vaccine;  
 KW diagnosis; antigen; detection; infection; gene therapy; antibacterial;  
 ds.

OS Neisseria meningitidis.

PN WO200066791-A1.

PD 09-NOV-2000.

PF 08-MAR-2000; 2000WO-US05928.

PR 30-APR-1999; 99US-0132068.

PR 08-OCT-1999; 99WO-US23573.

PR 28-FEB-2000; 2000GB-0004695.

PA (CHIR) CHIRON CORP.

PI (GENO-) INST GENOMIC RES.

PI Pizsa M, Hickey E, Peterson J, Tettelin H, Venter JC, Maignani V,  
 Galeotti C, Mora M, Ratti G, Scarselli M, Scarlato V, Rappuoli R;  
 PI Frazer CM, Grandi G;

DR WPI; 2000-647603/62.

XX Neisseria meningitidis B full length genome sequence and open reading  
 frames are used to detect, treat and prevent Neisserial infections -

PT frames are used to detect, treat and prevent Neisserial infections -

PS Claim 7; Appendix A: 692pp; English.

XX The present invention describes the full length genome of  
 CC Neisseria meningitidis B (NMB). The sequences in AAF21544 and AAF21607  
 CC to AAF21613 represent fragments of the NMB genomic sequence, as the  
 CC sequence was too long to go in a record on its own it was split into 8  
 CC sequences which overlap each other at the beginning and end of each  
 CC sequence by 49980 bp (i.e. the last 49980 bp of AAF21544 is repeated at  
 CC the beginning of AAF21607, the last 49980 bp of AAF21607 are repeated at  
 CC the beginning of AAF21608, and so on). AAF21545 to AAF21588 encode the  
 CC Neisseria proteins given in AAB58550 to AAB58593, and AAF21589 to  
 CC AAF21606 represent PCR primers which are used in the exemplification of  
 CC the present invention. The NMB genome and fragments from it have  
 CC antibacterial activity, and can be used in vaccines and gene therapy.  
 CC Neisseria nucleic acids, proteins and/or antibodies which bind to the  
 CC proteins can be used in compositions for treating or preventing infection  
 CC due to Neisserial bacteria or as a diagnostic reagent for detecting the  
 CC presence of Neisserial bacteria or of antibodies raised to Neisserial  
 CC bacteria. Computers, computer memory, computer storage medium or computer  
 CC databases can be used in a search to identify open reading frames (ORFs)  
 CC or coding sequences within the NMB genome. The DNA sequences provide  
 CC further opportunities to find antigenic or immunogenic proteins which are  
 CC more effective in vaccines than the outer membrane proteins currently  
 CC used.

XX Sequence 172325 BP; 43072 A; 47583 C; 41465 G; 40205 T; 0 other;

SQ Query Match 6.4%; Score 107; DB 21; Length 172325;

Best Local Similarity 61.8%; Pred. NO. 5.6e-21;

Matches 170; Conservative 0; Mismatches 105; Indels 0; Gaps 0;

XX 237 ccagcagcgccatcaaaagaataatcggtacattgcgcttccgcacagcgca 296

DB 122337 cgaacgacaggggttgaaagtgtatcggtatgaacccatttcgagcgacgaca 122396

XX 297 cgaagtcattccctccctgcacacacatgcctacatctcgtatgaaagccggtag 356

DB 122997 tgaagtcacagtcctgcgtatcatcatgataaaagacactcttcgattcagcgcg 123056

XX 357 tcccgctgacgattcagccttaccgcatcattggaagcgatcacgaacacattccgc 416

DB 123057 tgtagaagcggttactctgttaacactcgcgaacaggtcggaaatcatccgga 123116

XX 417 cgaagctatgacgagccacagggcggtatccgcgtcccaaaagcgcgagggatat 476

DB 123117 gatatgatatgacgagcgccagcagcgatattccgcgcccgagagcgagggatat 123176  
 XX 477 ataccagctacgacataaaggcgttgcacaaata 511  
 DB 123177 ataccagctatgacgaggaacttcaacaaaaa 123211

RESULT 42

AAZ12043 standard; DNA; 375 BP.

XX AAZ12043;

XX 08-OCT-1999 (first entry)

XX Neisseria meningitidis partial ORF29 sequence.

KW Neisseria meningitidis; Neisseria gonorrhoeae; antigen; vaccine;  
 KW treatment; Neisseria infection; meningitis; septicemia; gonorrhoea; ss.

OS Neisseria meningitidis.

PN WO924578-A2.

PD 20-MAY-1999.

PF 09-OCT-1998; 98WO-IB01665.

PR 01-SEP-1998; 98GB-0019016.

PR 06-NOV-1997; 97GB-0023516.

PR 14-NOV-1997; 97GB-0024190.

PR 18-NOV-1997; 97GB-0024386.

PR 27-NOV-1997; 97GB-0025158.

PR 10-DEC-1997; 97GB-0026147.

PR 14-JAN-1998; 98GB-0000759.

XX (CHIR-) CHIRON SPA.

PI Grandi G, Maignani V, Pizsa M, Rappuoli R, Scarlato V;

DR WPI; 1999-327407/27.

DR P-PSDB; AAY38580.

XX Proteins from Neisseria meningitidis and N. gonorrhoeae useful for  
 PT diagnosis, treatment and prevention of infection

XX Claim 9; Page 143; 524pp; English.

XX Nucleotide sequences AAZ11972-212358 represent open reading frames  
 CC (ORFs) of Neisseria meningitidis and N. gonorrhoeae which encode  
 CC antigenic proteins (see AAY38499-Y38944). The antigenic proteins, their  
 CC fragments, their nucleic acids and antibodies are used for diagnosis,  
 CC prevention (as vaccines) or treatment of Neisseria infections,  
 CC such as meningitis, septicemia and gonorrhoea. Both organisms  
 CC are closely related. Fragments of the nucleic acids are useful  
 CC as hybridisation probes and antisense reagents.

SQ Sequence 375 BP; 105 A; 89 C; 90 G; 90 T; 1 other;

XX Query Match 5.9%; Score 98; DB 20; Length 375;

Best Local Similarity 59.6%; Pred. NO. 8.1e-20;

Matches 164; Conservative 0; Mismatches 111; Indels 0; Gaps 0;

XX 237 ccagcagcgccatcaaaagaataatcggtacattgcgcttccgcacagcgca 296

DB 27 cgaacgacaggggttgaaagtgtatcggtatgaacccatttcgagcgacgaca 86

XX 297 cgaagtcattccctccctgcacacacatgcctacatctcgtatgaaagccggtag 356

DB 87 tgaagtcacagtcctgcgtatcatcatgataaaagacactcttcgattcagcgcg 146

OY 357 tccggttagcagatccagccttaccgcatcattggagcagatagcaacacatccgcg 416  
 Db 147 tglagacggcggttactgttaccacttccagacatgltcggaatccatccgcga 206  
 OY 417 cgaagcgtatagcagcgccacagggcggtatcccgctcccaagcgcgagat 476  
 Db 207 ggaatgaatagcagcgccgaagcagcgnattatccgcgcccgagcgagagat 266  
 OY 477 atacagctacacataaaggcgttgcccaata 511  
 Db 267 atacagctattatgtcaaaagaaacttcaacaaaa 301

## RESULT 43

ID AAF21611 standard; DNA: 375 BP.  
 AC AAF21611

DE 04-DEC-2000 (first entry)

N. meningitidis MenB polynucleotide sequence ORF number 19.

KW Neisseria meningitidis; Neisseria gonorrhoeae; genome; immunogenic;  
 antigen; vaccine; diagnosis; infection; antibacterial; identification;  
 Meningococcus B; MenB; ds.

OS Neisseria meningitidis.

PN WO20002430-A2.

PD 20-APR-2000.

PF 08-OCT-1999; 99WO-US23573.

PR 09-OCT-1998; 98US-0103794.  
 PR 30-APR-1999; 99US-0132068.

PA (CHIR ) CHIRON CORP.

PI Frazer CM, Hickey E, Peterson J, Tettelin H, Venter JC,  
 PI Maignani V, Galeotti C, Mora M, Ratti G, Scarselli M, Scarlato V,  
 PI Rappunoli R, Pizze M;  
 DR WPI: 2000-318079/27.

Isolated nucleotide sequences of Neisseria meningitidis which can be  
 used in the diagnosis and treatment of N. meningitidis infection and  
 other Neisserial infections, for example, N. gonorrhoea -

Disclosure; Page 204; 1760pp; English.

The present invention describes methods of obtaining immunogenic  
 proteins from Neisseria genomic sequences. AAF21611 to AAF21612  
 represent specifically claimed Neisseria meningitidis genomic DNA  
 sequences. AAF21611 to AAF21612 and AAF21613 to AAF21614 represent  
 Neisseria DNA sequences and their corresponding proteins. AAF21615 to  
 AAF21619 and AAF21620 to AAF21624 represent PCR primers used in the  
 isolation of Neisseria meningitidis DNA sequences. AAF21625 to  
 AAF21632 represent Neisseria meningitidis MenB polynucleotide ORF  
 sequences, which are all used in the exemplification of the present  
 invention. The nucleic acid sequences, protein sequences, and antibodies  
 against them, can be used in the manufacture of a composition. The  
 composition can be used as a medicament (or in the manufacture of a  
 medicament) for treating, preventing or diagnosing infection due to  
 Neisserial bacteria. For example, some of the identified proteins could  
 be components of vaccines against Meningococcus B against all serotypes;  
 and/or against all pathogenic Neisseriae. Identification of biological probes  
 from the bacterium will also facilitate production of biological probes,  
 particularly organism-specific probes. Attempts to make efficacious  
 Meningococcus B vaccines have failed mainly due to antigen tolerance.  
 Multivalent vaccines have also been tried but none have successfully  
 overcome antigenic variability. The provision of further, complete

CC sequences may provide an opportunity to identify secreted or surface  
 CC exposed proteins that may be presumed targets for the immune system and  
 CC which are not antigenically variable or at least more conserved than  
 CC other more variable regions.

SQ Sequence 375 BP; 105 A; 89 C; 90 G; 90 T; 1 other;

Query Match 5 98; Score 98; DB 21; Length 375;  
 Best Local Similarity 59.68; Pred. NO. 8.1e-20;  
 Matches 164; Conservative 0; Mismatches 111; Indels 0; Gaps 0;

OY 237 ccagcagcgccatcaaaagaataatcgccacattgctccgcttccgctcagcgca 296  
 Db 27 cgaagcagcggttgaaggtgtatcggtatgaacacatttccagcgcgaca 86  
 OY 297 cgaagcattcccttcgacacacattgctcattcgtatgtagcggtag 356  
 Db 87 tgaagtaacacagtcggttgcattcattcaaaaagcacttctgattcagcgcg 146  
 OY 357 tccggttagcagatccagccttaccgcatcattggagcagatagcaacacatccgcg 416  
 Db 147 tglagacggcggttactgttaccacttccagacatgltcggaatccatccgcga 206  
 OY 417 cgaagcgtatagcagcgccacagggcggtatcccgctcccaagcgcgagat 476  
 Db 207 ggaatgaatagcagcgccgaagcagcgnattatccgcgcccgagcgagagat 266  
 OY 477 atacagctacacataaaggcgttgcccaata 511  
 Db 267 atacagctattatgtcaaaagaaacttcaacaaaa 301

## RESULT 44

ID AAF21611 standard; DNA: 349980 BP.

AC AAF21611;

DE 13-MAR-2001 (first entry)

N. meningitidis B nucleotide sequence SEQ ID NO:112.

KW Neisseria meningitidis; Neisseria gonorrhoeae; immunogenic; vaccine;  
 diagnosis; antigen; detection; infection; gene therapy; antibacterial;  
 ds.

OS Neisseria meningitidis.

PN WO200066791-A1.

PD 09-NOV-2000.

PF 08-MAR-2000; 2000WO-US05928.

PR 30-APR-1999; 99US-0132068.

PR 08-OCT-1999; 99WO-US23573.  
 PR 28-FEB-2000; 2000GB-0004695.

PA (CHIR ) CHIRON CORP.  
 PA (GENO-) INST GENOMIC RES.

PI Pizze M, Hickey E, Peterson J, Tettelin H, Venter JC, Maignani V,  
 PI Galeotti C, Mora M, Ratti G, Scarselli M, Scarlato V, Rappunoli R;  
 PI Frazer CM, Grandi G;  
 DR WPI: 2000-647603/62.

Neisseria meningitidis B full length genome sequence and open reading  
 frames are used to detect, treat and prevent Neisserial infections -  
 Claim 7; Appendix A: 692pp; English.



